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PNEUMOCOCCUS TYPE I PNEUMONIA

A STUDY OF ELEVEN HUNDRED AND SIXTY-ONE CASES, WITH ESPECIAL REFERENCE TO SPECIFIC THERAPY *

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The classification of pneumococci into specific biogic groups has transformed the medical point of view ith respect to pneumonia. Formerly, the physician ked: "Is it lobar or bronchopneumonia?" Today, he sks, "Is it type I, type II or type III pneumonia?" his change in attitude is fitting and proper, for the iology of a disease is of much greater practical sigficance than its anatomic characteristics. Furtherore, recent studies in this field have shown that the ree dominant types of pneumococci are not only biogically specific but, in addition, produce more or less haracteristic clinical pictures.

PNEUMOCOCCUS TYPE I PNEUMONIA

For the past ten years all cases of lobar pneumonia dmitted to the medical wards of Bellevue Hospital ave received careful bacteriologic study. During this ime, 1,161 cases of pneumococcus type I pneumonia ave come under our observation. In the present aper we subject this series of cases to clinical analysis nd report the results of specific therapy. This series ncludes thirty cases of type I pneumonia which have ccurred in children.

Method of Typing.—The mouse method was used as routine in the bacteriologic examination of sputum. Agglutination and precipitin tests were performed with he peritoneal exudate of the mouse, and at the same ime cultures were taken on blood-agar plates from oth the heart's blood and peritoneum of the mouse. In atal cases that came to autopsy, intravitam cultures vere controlled by postmortem cultures. During the ast two years, Sabin's[1] rapid method of typing has een extensively employed and has often made it possible to determine the pneumococcus type on the same lay the patient was admitted to the hospital. In addiion to the routine sputum cultures, many patients were subjected to blood cultures, and cultures were made from all pleural, pericardial and joint exudates.

Incidence.—Although pneumococcus type I is rarely found in healthy throats, type I pneumonia is the most prevalent of all the types. This fact is well brought out in table 1, in which the incidence of types in the adult series is listed. Of 3,662 cases of lobar pneumonia in adults, 1,131, or 30.9 per cent, were type I infections; type II was next in frequency, with an incidence of 23.2 per cent; type III caused only 11.9 per cent. The miscellaneous group of pneumococci was responsible for 34.1 per cent of the pneumonias studied in this series; however, a recent classification of this group into its component types shows that none of the twenty-three new types described by Park and Cooper[2] compare in frequency with pneumococcus type I as an exciting agent of pneumonia in adults.

Pneumococcus type I pneumonia is, therefore, the commonest form of lobar pneumonia, constituting almost one third of all the lobar pneumonias in Bellevue Hospital. The Bellevue figures agree closely with those of other institutions. For example, in Cole's[3] series of cases, 33.3 per cent were type I infections: in the series of Park, Bullowa and Rosenbluth,[4] 28.5 per cent were of this type.

Occurrence in Children.—It is interesting to compare the incidence of pneumococcus type I in adults with that in children. In a bacteriologic study of 147 cases of pneumonia in children, Plummer, Raia and Shultz[5] encountered only 14 type I infections, or 9.5 per cent. All but three of these occurred after the third year. From these figures it appears that type I pneumonia is quite rare in infants, while in children between the ages of 3 and 12 years it constitutes only 10 per cent of the total group.

Incidence According to Age.—In an analysis of 2,000 cases of pneumonia reported in 1927, Cecil, Baldwin and Larsen[6] pointed out that pneumococcus type I pneumonia was essentially the pneumonia of young people. In 585 cases of lobar pneumonia occurring in adults under 30 years of age, these investigators found that 246, or 42 per cent, were type I infections. In the present series of 1,127 type I pneumonias, 696, or 61.8 per cent, occurred in individuals between 10 and 40 years of age.

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* This study received financial aid from the Metropolitan Life Insurnce Company's Influenza Fund.

* Read before the Section on Pharmacology and Therapeutics at the ighty-First Annual Session of the American Medical Association, Detroit, une 27, 1930.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the authors' reprints.

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[1] Sabin, A. B.: The "Stained Slide" Microscopic Agglutination Test: Application to (1) Rapid Typing of Pneumococci; (2) Determination of Antibody, Proc. Soc. Exper. Biol. & Med. **26:** 492-494 (March) 1929.

[2] Cooper, Georgia; Edwards, Marguerite; and Rosenstein, Carolyn: The Separation of Types Among the Pneumococci Hitherto Called Group IV and the Development of Therapeutic Antiserums for These Types, J. Exper. Med. **49:** 461-474 (March) 1929.

[3] Avery, O. T.; Chickering, H. T.; Cole, Rufus; and Dochez, A. R.: Acute Lobar Pneumonia; Prevention and Serum Treatment, Monograph 7, Rockefeller Institute for Medical Research, Oct. 16, 1917.

[4] Park, W. H.; Bullowa, J. G. M., and Rosenbluth, M. B.: The Treatment of Lobar Pneumonia with Refined Specific Antibacterial Serum, J. A. M. A. **91:** 1503-1507 (Nov. 17) 1928.

[5] Plummer, Norman; Raia, Antoinette; and Shultz, Selma: Pneumonia in Children, Am. J. Dis. Child. **40:** 557-568 (Sept.) 1930.

[6] Cecil, R. L.; Baldwin, H. S., and Larsen, N. P.: Lobar Pneumonia; A Clinical and Bacteriologic Study of Two Thousand Typed Cases, Arch. Int. Med. **40:** 253-280 (Sept.) 1927.

Clinical Features.—Pneumococcus type I pneumonia might perhaps be called the prototype of lobar pneumonia. With few exceptions, the type I patient gives a typical history, presents the typical signs and symptoms, and has a typical course. In a great majority of the patients, the onset is marked by a chill and pain in the side. The characteristic cough, accompanied by rusty sputum, soon makes its appearance. The temperature is prone to run along on a high plateau between 103 and 105 F., and in a majority of the cases the termination is marked by crisis rather than by lysis.

Complications.—The incidence of serious complications in 1,131 cases of pneumococcus type I pneumonia in adults is given in table 2. Other complications were: pleural effusion, 26 cases; jaundice, 19 cases; delayed resolution, 17 cases; cellulitis, 32 cases, and cardiac irregularity, 26 cases. Pneumothorax developed in 3 patients, lung abscess in 4.

Table 1.—*Incidence of Pneumococcus Types in Lobar Pneumonia of Adults Treated in Bellevue Hospital 1920-1930* *

Pneumococcus	Number of Cases	Percentage of Incidence
Type I	1,131	30.9
Type II	850	23.2
Type III	434	11.9
Group IV	1,247	34.1
Total	3,662	

* This series does not include cases admitted during the season of 1925-1926.

The common complications in children were empyema and otitis media. In 30 cases of type I pneumonia in children, empyema was noted in 5, or 16.7 per cent. Otitis media also occurred in 5 patients.

Bacteremia.—From 1926 to 1930, 470 type I patients were subjected to blood cultures and 90, or 19.2 per cent, showed a pneumococcus bacteremia. During the past year, blood cultures have been carried out as a routine procedure in 64 cases; 19 of these yielded pneumococci, an incidence rate of 29.7 per cent. This figure corresponds with that reported by other investigators.

Mortality Rate.—The death rate from pneumococcus type I pneumonia differs considerably in different institutions, depending particularly on the type of patient which the hospital admits to its wards. Figures reported by Wadsworth,[7] Locke,[8] Cole [3] and others show a mortality for patients with type I pneumonia not receiving serum of 15 to 25 per cent. In our Bellevue series of 412 cases without serum, in the period from 1920 to 1929, there is a mortality of 28.2 per cent.

Table 2.—*Serious Complications in Pneumococcus Type I Pneumonia*

	Number	Per Cent
	73	6.5
	20	1.8
	10	0.9
	7	0.6
	4	0.4
	5	0.5

The death rate for type I pneumonia in Bellevue Hospital has shown a steady rise since 1921, the second year of our investigation. The annual death rate of patients not receiving serum is given in table 3.

It is extremely important to note that in the period from 1921 to 1929 the mortality rate has increased from 20 per cent to 42.8 per cent. An explanation of this increase is not entirely clear; however, such factors as the influenza epidemic of 1918 and the increasing incidence of alcoholism seem to be important.

Table 3.—*Annual Death Rate of Patients Not Receiving Serum*

Year	Percentage of Mortality
1920-1921	23.8
1921-1922	20.0
1924-1925	26.4
1926-1927	30.4
[illegible]	35.3
[illegible]	42.8

Table 4 presents the comparative death rates in the Hospital of the Rockefeller Institute[9] and in Bellevue Hospital. From this table it is evident that the death rate at Bellevue Hospital for lobar pneumonia (all types) is almost twice that of the Rockefeller Hospital. The reason for this difference is not entirely clear. Probably the most important factor is the difference in type of patient admitted. Other possible factors are incidence of alcoholic patients, character of nursing, amount of examination by students, and frequency of oxygen therapy.

The mortality rate for type I pneumonia in our series varied, of course, with the age of the patients. In children under 12 years of age it was 3.3 per cent; the figures rose with each decade until in patients over 50 it was 46.2 per cent.

The death rate for type I pneumonia was greatly affected by the presence of pneumococcus bacteremia. For example, in our series there were 412 patients with type I pneumonia who received no serum. Of these, 45 patients who showed a pneumococcus bacteremia had a death rate of 66.7 per cent, while 80 type I patients with negative blood cultures showed a death rate of only 22.5 per cent. In other words, the death rate was three times as high in the septic cases as in the nonseptic cases in this group.

Table 4.—*Comparative Death Rates in Hospital of Rockefeller Institute and in Bellevue*

	Rockefeller Hospital[9]	Bellevue Hospital
Type I	11.6*	28.2†
Type II	28.5	48.9
Type III	43.0	34.1
Group IV	12.8	31.3
Total series	19.5	34.5

* Mostly serum treated cases.
† None received serum.

The death rate in patients with serious complications was very high. Twenty-nine cases of pneumococcus type I empyema showed a death rate of 51.7 per cent. This figure, however, is a little misleading, owing to the frequent discovery of pus in the pleura of moribund patients admitted late in the disease. Five patients with suppurative pericarditis, two with vegetative endocarditis, and eleven with meningitis all died.

Specific Treatment.—The studies of Neufeld[10] in Germany and of Cole[3] in America (1913) mark the beginning of the modern specific therapy of pneumonia.

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[7] Wadsworth, A. B.: Review of Recently Published Reports on the Serum Treatment of Type I Pneumonia, Together with a Report of 445 Additional Cases, Am. J. Hyg. **4:** 119 (March) 1924.

[8] Locke, E. A.: The Treatment of Pneumococcus Type I Pneumonia with Specific Serum, J. A. M. A. **80:** 1507 (May 26) 1923.

[9] Cole, R. I.: Acute Pulmonary Infections, De Lamar Lectures, 1927-28, Baltimore, Williams & Wilkins Company, 1928.

[10] Neufeld, F., and Händel, L.: Arb. a. d. k. Gsndhtsamte **34:** 293, 1910.

In Cole's investigations, horses were highly immunized against type I pneumococci; the serum of these horses was then injected intravenously into patients infected with type I pneumonia. The doses of serum recommended were quite high, 100 cc. intravenously every eight hours until the temperature dropped and the patient showed definite improvement. Cole,[11] in a recent review of his studies on the serum treatment of type I pneumonia, gives a complete description of the work. In Cole's series of 431 cases of type I pneumonia, practically all the patients received type I serum. The death rate for his entire series was 10.2 per cent, but there was no control series for comparison.

EVIDENCE OF VALUE OF TYPE I PNEUMOCOCCUS SERUM

Since the original studies of Cole, Dochez and others[3] on the value of type I antipneumococcus serum, a considerable amount of evidence in favor of the value of type I serum has accumulated from various sources. For convenience, this evidence can be submitted under three headings: (1) experimental; (2) clinical; (3) statistical.

1. *Experimental Evidence.*—The experimental evidence in favor of type I serum is very convincing. In the first place, the serum of a horse immunized against pneumococcus type I contains the same immune bodies (agglutinins, precipitins and protective substance) that are found in the human blood of the pneumonic patient after crisis. Furthermore, when a mouse is given as many as a million fatal doses of pneumococcus culture, its life can be saved by the prompt injection of an adequate amount of type I antipneumococcus serum.

Cecil and Blake found that, in the experimental pnuemococcus type I pneumonia of monkeys, type I serum, in every case, saved the animals that had been injected intratracheally with lethal doses of type I pneumococcus culture. Normal horse serum had no therapeutic effect on the infected monkeys.

Goodner[12] has recently contributed additional evidence of the value of type I serum in experimental pneumococcus infections in rabbits, produced by intracutaneous injection of the organisms. Rabbits that received lethal doses of pneumococcus type I intracutaneously were readily saved by intravenous injections of type I serum.

The experimental evidence, therefore, is decidedly in favor of the therapeutic value of type I serum.

2. *Clinical Evidence.*—Cole[3] first pointed out the striking clinical effect that frequently follows the intravenous injection of type I serum. Within twenty-four hours the temperature, together with the pulse and respiratory rate, often drops from a high point to normal. Toxic symptoms are ameliorated and the patient's whole appearance changes. Perhaps the most significant of all the clinical effects is the prompt disappearance of pneumococci from the blood stream of septic patients.

These observations of Cole have been abundantly confirmed by other investigators. It must be admitted that such a prompt and striking clinical effect is not observed in every case and that the patients most likely to yield satisfactory results are those who receive serum early in the disease.

3. *Statistical Evidence.*—The statistical evidence in favor of type I serum is not so convincing as one would expect from the experimental and clinical evidence in its favor. Cole treated 431 cases of type I pneumonia with type I serum and reported a death rate of only 10.2 per cent. As no control series was studied, however, it is impossible to say what the death rate would have been if no serum had been used.

Locke[8] and, more recently, Wadsworth[7] have published their results on the treatment of type I pneumonia with type I serum, the two investigators obtaining the same death rate (from 17 to 18 per cent). In both series, however, patients who were not given serum showed approximately the same death rate (from 17 to 19 per cent).

INVESTIGATIONS AT BELLEVUE HOSPITAL

In 1920 we initiated our studies on the specific treatment of lobar pneumonia at Bellevue Hospital. At this time, standard type I serum had been in use for seven years. On account of certain practical difficulties, it had not achieved the popularity which it apparently deserved. The serum was beneficial for only one type of pneumonia; not infrequently, it excited sharp reactions, either allergic or thermal in the patient; and, further, the technical difficulties connected with the administration of large intravenous doses of serum militated strongly against the extensive use of the serum in small hospitals and in private practice. Even in many large metropolitan hospitals type I serum had been completely abandoned when the studies on refined antipneumococcus serums at Bellevue Hospital were initiated. The time seemed appropriate for testing the therapeutic effect of various serum derivatives with the hope of ultimately obtaining a refined and concentrated product that would be easy to administer, free from untoward after-effects, and possibly polyvalent in character.

HUNTOON'S ANTIBODY SOLUTION

For two years, our attention was concentrated on Huntoon's antibody solution, a water clear solution of antipneumococcal immune bodies, polyvalent for types I, II and III. This product has a very low nitrogen content, and the amount of horse serum protein is so minute that it cannot be detected by chemical tests.

Huntoon's antibody solution contains a high content of protection against pneumococcus type I, 0.2 cc. usually protecting a mouse against 0.1 cc. of a virulent culture. Its protective power against type II is not so marked, while against type III its potency is even lower, the best lots rarely protecting against more than 0.001 cc. of virulent type III culture. The results of our two years' experience with Huntoon's antibody solution[13] have been published in full. At this time it will suffice to refer only to the results obtained in the treatment of type I pneumonia. The actual figures are shown in table 5. One hundred and seventy-one cases of type I pneumonia admitted to six medical wards were treated with antibody solution and showed a death rate of 14 per cent; 171 control cases admitted to six other medical wards during the same period of time received no specific treatment and showed a death rate of 21.1 per cent. In 56 cases of type I pneumonia admitted within forty-eight hours after onset of the disease, *treatment with the antibody solution yielded* a death rate of only 8.9 per cent, whereas 68 control cases admitted to the control wards within forty-eight hours of onset showed a death rate of 23.5 per cent, almost three times that for the treated cases.

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[11] Cole, Rufus: Serum Treatment in Type I Lobar Pneumonia, J. A. M. A. **93**: 741-747 (Sept. 7) 1929.

[12] Goodner, Kenneth: Further Experiments with the Intradermal Pneumococcus Infection in Rabbits, J. Exper. Med. **48**: 413-429 (Sept. 1) 1928.

[13] Cecil, R. L., and Larsen, N. P.: Clinical and Bacteriologic Study of One Thousand Cases of Lobar Pneumonia, with Special Reference to the Therapeutic Value of Pneumococcus Antibody Solution: Preliminary Report, J. A. M. A. **79**: 343-348 (July 29) 1922.

Huntoon's antibody solution gave very good clinical results and did away with one of the disadvantages of type I serum; it was never followed by anaphylactic reactions or serum sickness. It, however, possessed no more potency than standard type I serum, and large doses of from 50 to 100 cc. were necessary for satisfactory results. When injected intravenously, the antibody solution produced chills much more frequently than type I serum. Indeed, during the early days of our work with this product, almost every intravenous injection of the solution was followed by a sharp chill and rise of temperature. These thermal reactions were sometimes quite severe, and in three cases the intravenous injection of antibody solution appeared to be the immediate cause of death.

Summarizing, Huntoon's antibody solution was free from horse protein but was no more concentrated than the original type I serum. It yielded very good clinical and statistical results in type I pneumonia, but the injections were often followed by severe thermal reactions.

Table 5.—*Comparison of Mortality Rates in Cases Treated with Huntoon's Antibody Solution and Control Cases**

	Treated			Control		
Year	Cases	Deaths	Mortality, per Cent	Cases	Deaths	Mortality, per Cent
1920-1921	87	14	16.1	79	18	22.8
1921-1922	84	10	11.9	92	18	19.6
Total......	171	24	14.0	171	36	21.1

* Patients who died within twenty-four hours of admission are not included.

FELTON'S CONCENTRATED SERUM

From 1924 to 1929, alternate cases of pneumococcus type I pneumonia have been treated in Bellevue Hospital with Felton's concentrated antipneumococcus serum.

Felton's antipneumococcus serum is prepared as follows:

> Twenty per cent anhydrous sodium sulphate is added to standard antipneumococcus serum and allowed to stand in an incubator at 37 C. from one to two hours until a precipitate forms. After filtration the precipitate is dialized in running water from five to seven days, viscous membranes being used for the dialysis. The content of the sac is then adjusted to a p_H of from 4.6 to 4.8, at which point a second precipitate forms. This precipitate is removed and the clear supernatant fluid containing immune bodies and some globulin and albumin is adjusted to a p_H of 6.8 and diluted four or five times with cold distilled water. A white precipitate is thrown down containing practically all the protective substance in the original serum. This precipitin dissolves readily in sodium chloride, is high in protective power, and is practically free from chill-producing substances.[14]

The concentration of Felton's serum varies somewhat with different lots; this inequality, however, is readily overcome by pooling the serums from several horses. The actual ratio of its potency to unconcentrated serum has been difficult to determine for the reason that laboratories have employed different methods of standardization. Felton[15] has recently published an article on the concentration of antipneumococcus serum in which he presents comparisons of the common immunologic reactions of unconcentrated serum with those of concentrated serum. The figures are so impressive that the table is reproduced in full (table 6).

Table 6.—*Comparison of the Common Immunologic Reactions of Pneumococcus Serum and Its Concentrate (Felton)*[15]

	Type I Serum	Type I Concentrate
Precipitins..............................	25-50*	100-900
Agglutinins..	10	100
Complement fixation....................	10	100
Opsonins..................................	40	300
Bactericidal action †....................	10^4	2×10^5
Protection................................	500	7,000
Neutralization............................	50	500

* Numbers indicate highest dilutions giving positive reactions.
† Numbers indicate actual number of bacteria killed.

In this experiment the concentrate was prepared from a certain lot of standard serum and then compared with the original serum in respect to its content of immune bodies. From the results shown in the table, there can be no doubt that the concentrate represents a real concentration of all the known antibodies of antipneumococcus serum. In this particular experiment the immune bodies in the concentrate averaged about ten times the potency of those in the original serum.

Two methods have been employed for testing the potency of antipneumococcus serum. In the older method, recommended by Cole and adopted by the United States Hygienic Laboratory, mice are injected with a constant dose of serum and a varying amount of pneumococcus culture. In Felton's method, the mice receive a constant amount of culture and varying dilutions of serum. The Hygienic Laboratory test requires the survival of 50 per cent of the mice injected simultaneously with 0.2 cc. of serum and 0.1 cc. of an eighteen-hour broth culture of pneumococcus of such virulence that 0.00000001 cc. causes death. The "unit of protection" that Felton employs is that amount of serum which will protect mice against one million lethal doses of virulent pneumococci. According to Felton's "unit" method, a wide variation in potency, ranging from 100 to 2,000 units per cubic centimeter can be demonstrated in serums that have already passed the Hygienic Laboratory standard. In other words, the Hygienic Laboratory test is one that sets 'a minimum standard of potency but does not measure the extent by which the serum may exceed the standard in protective value.

Table 7.—*Mouse Protection Test on Antipneumococcus Serums (Hygienic Laboratory Method)*

Amount of Serum	Gov. Standard No. P. 8	N. Y. State No. 406	Felton's Conc. No. 62
0.2 cc. undiluted..............	S*	S*	D*
0.2 cc. 1:5....................	D	S	S
0.2 cc. 1:10...................	D	S	S
0.2 cc. 1:20...................	D	D	S
0.2 cc. 1:40...................	—	D	S
0.2 cc. 1:80...................	—	—	S

* One-tenth cubic centimeter virulent broth culture in every case. S signifies that two out of three mice inoculated survived, and D, that two out of three died.

In Cole's recent article on the serum treatment of type I pneumonia, he questions the accuracy of Felton's method of standardization and contends that the only reliable method of testing potency is to subject the serum to the most rigorous test possible, namely, that

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[14] Felton, L. D.: *Concentration of Pneumococcus Antibody*, J. Infect. Dis. **43**: 543-553 (Dec.) 1928.

[15] Felton, L. D.: The Concentration of Antipneumococcus Serum, J. A. M. A. **94**: 1893-1896 (June 14) 1930.

0.1 cc. or 0.2 cc. of the serum shall protect a mouse against 0.1 cc. of a culture of the highest virulence. He suggests that the simplest and most satisfactory way to test concentrated serum would be to make various dilutions of it and test them in the same manner that the whole serum is tested. We have actually carried out such a test and the results are shown in Table 7.

Various dilutions of government standard serum, New York State serum, and Felton's concentrated serum were tested for protective power in mice, each mouse receiving 0.2 cc. of serum and 0.1 cc. of virulent broth culture. When tested by this method the concentrated serum was found to have protective power in much higher dilutions than the unconcentrated preparations. With Felton's serum the mice survived at a dilution of 1:80. With the New York State serum a dilution of 1:10 was the highest to protect mice, and with the government standard serum only the undiluted preparation gave protection. The failure of the undiluted concentrated serum to protect mice is explained on the basis of the well known "zone phenomenon," which so frequently occurs in immunologic reactions.

In Goodner's interesting study of the therapeutic value of various antipneumococcic serums in experimental pneumococcus infection of rabbits, he found that the minimal effective dose was much smaller for Felton's serum than for unconcentrated preparations. Table 8 is part of one of Goodner's [12] protocols and is reproduced here because it shows so clearly the relative therapeutic value of concentrated and unconcentrated serums. The minimal effective dose of Felton's serum (0.2 cc.) was approximately one fifteenth of the minimal effective dose of either of the two unconcentrated preparations. The difference in agglutinin titer was even more marked.

Table 8.—*Comparison of Agglutinin and Rabbit Therapeutic Value of Unconcentrated and Concentrated Serums (Goodner)*

Serum Number	Rabbit Therapeutic Value (Minimal Effective Dose of Serum)	Agglutinin Titer
1. Antipneumococcic serum (horse). Hygienic Laboratory Control P 7	3.0	80
2. Antipneumococcic serum (horse). Massachusetts Antitoxin and Vaccine Laboratory, Lot P 315	3.5	40
3. Concentrated pneumococcus antibodies (Felton). Type I, Lot 56	0.2	640

At the outset of our work we tested the therapeutic value of Felton's serum on monkeys experimentally infected with pneumococcus type I pneumonia. Four monkeys were given lethal doses of pneumococcus type I intratracheally and all four animals promptly developed pneumonia and pneumococcus bacteremia. Twenty-four hours after infection, three of the monkeys each received several intravenous injections (from 5 to 10 cc.) of concentrated serum. The three treated monkeys showed almost immediate signs of improvement, and pneumococci disappeared from the blood stream. The fourth monkey did not receive any serum and died on the third day with a heavy pneumococcal septicemia.

In our investigations with Felton's serum the alternate case method was used; that is, every patient diagnosed as having lobar pneumonia was given a number; the patients with even numbers received the serum—those with odd numbers served as controls. The method of administering the concentrated serum has been described in detail in a previous article.[16] After a preliminary test for sensitiveness to horse serum, 5 cc. of concentrated serum was slowly injected intravenously. From one to two hours later, from 10 to 20 cc. was given intravenously, the dose depending on the potency of the lot and the severity of the case. In general, we have tried to administer from 100,000 to 200,000 units (from 40 to 100 cc.) during the first twenty-four hours of treatment. It is our present conviction that in most cases serum treatment should be completed in forty-eight hours; that is, if results are to be obtained at all, they will usually be obtained within that time.

Table 9.—*Comparison of Mortality Rates in Cases Treated with Felton's Concentrated Serum and Control Cases* *

	Treated			Control		
Year	Cases	Deaths	Mortality, per Cent	Cases	Deaths	Mortality, per Cent
1924-1925	49	10	20.4	57	15	26.3
1926-1927	68	12	17.7	77	22	28.6
1927-1928	83	19	22.9	67	23	34.3
1928-1929	39	7	18.0	33	13	39.4
Total	239	48	20.1	234	73	31.2

* Patients who died within twenty-four hours of admission are not included.

Clinical Effect.—There is no more striking clinical effect in the whole domain of specific therapy than that which frequently follows the early administration of Felton's serum in type I pneumonia. The temperature drops rapidly, very much as in a natural crisis, and all signs of toxemia frequently disappear within twenty-four hours after the initiation of treatment.

The effect of concentrated serum on pneumococcal septicemia is quite as marked as that of unconcentrated serum. Unless the sepsis is extreme (several hundred colonies to 1 cc. of blood), pneumococci disappear from the blood stream after one or two injections of serum.

Effect on the Mortality Rate.—The effect of concentrated serum on the mortality rate of type I pneumonia is indicated by year in table 9. All together, 239 cases of type I pneumonia have been treated with Felton's concentrated serum, with a death rate of 20.1 per cent; 234 alternate controls show a death rate of 31.2 per cent. It is noteworthy that, in the four year period, the death rate of the treated cases has varied from 17.7 to 22.9 per cent, and for the controls from 26.3 to 39.4 per cent. Table 10 is a comparison of mortality rates in cases admitted within seventy-

Table 10.—*Comparison of Mortality Rates in Cases Treated with Felton's Concentrated Serum and Control Cases Admitted Within Seventy-Two Hours of Onset* *

	Treated			Control		
Year	Cases	Deaths	Mortality, per Cent	Cases	Deaths	Mortality, per Cent
1924-1925	26	2	7.7	25	7	28.0
1926-1927	22	0	0.0	27	4	14.8
1927-1928	33	6	18.2	28	9	32.1
1928-1929	22	4	18.2	17	6	35.3
Total	103	12	11.7	97	26	26.8

* Patients who died within twenty-four hours of admission are not included.

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[16] Cecil, R. L., and Sutliff, W. D.: The Treatment of Lobar Pneumonia with Concentrated Antipneumococcus Serum, J. A. M. A. **91**: 2035-2042 (Dec. 29) 1928.

two hours of onset of symptoms. Here the contrast between the death rate in treated and control cases is even more striking. One hundred and three cases of type I pneumonia treated with Felton's serum showed a death rate of only 11.7 per cent, while ninety-seven controls had a mortality of 26.8 per cent, two and a half times as high as the treated group.

The favorable results obtained at Bellevue Hospital with Felton's serum, reported by Cecil and Sutliff[16] and in this paper, are fully corroborated by the figures reported for Harlem Hospital in New York by Park, Bullowa and Rosenbluth,[4] who also employed the alternate case method of treatment. One hundred and nine cases of type I pneumonia treated with Felton's serum showed a death rate of 17 per cent, while 105 controls had a mortality of 31 per cent.

Table 11.—*Analysis of the Forty-Eight Fatal Cases in the Series Receiving Felton's Concentrated Serum*

Complicating Factors		Number of Cases
Primary	Secondary	
Moribund	Each of these patients recived less than 20 cc. of serum	9
Pneumococcus meningitis		2
Empyema	1 aged 79 years 1 surgical shock 1 mixed with Streptococcus hemolyticus 1 alcoholism	4
Sepsis with acute arthritis	1 mixed with Friedländer's bacillus 1 alcoholism and auricular fibrillation 1 aged 59 years and late admission	3
Sepsis	5 alcoholism 3 late admission 1 asthma 1 syphilis 1 otitis media	11
Cardiac failure		3
Senility	Ages 62, 65, 76 years	3
Erysipelas	1 pulmonary tuberculosis 1 alcoholism	2
Alcoholism	(2 cases with delirium)	5
Asthma		1
Delirium		2
Late admission		1
None	1 aged 50 years 1 aged 26 years	2
Total		48

Park, Bullowa and Rosenbluth also compared the death rates in treated and untreated septic cases. In twenty-eight septic type I pneumonia patients who received Felton's serum, the death rate was 36 per cent; in twenty-eight control patients with pneumococcus sepsis, the death rate was 71 per cent.

In our experience the administration of concentrated serum has had no appreciable effect on the incidence or death rate of complications.

Analysis of Fatal Cases.—In table 11 are listed the forty-eight patients with type I pneumonia who died in spite of treatment with Felton's serum. Some morbid process other than pneumonia was a factor in nearly every case.

COMMENT

We believe that enough evidence has been submitted in this paper to justify the statement that the various types of pneumonia should be thought of as separate entities. Certainly there is as much difference between type I and type II pneumonia as there is between typhoid and paratyphoid fever. If this is true, the diagnosis is not complete in any case until the type of pneumococcus has been determined. By making use of Sabin's rapid method of typing, the bacteriologic diagnosis can often be determined within a few hours after the clinical diagnosis of pneumonia has been made.

The clinical features of type I pneumonia as stressed in the present study have important diagnostic and prognostic connotations. It is important to appreciate the high incidence of type I pneumonia, its clinical characteristics, and its tendency to frequent complications.

We wish to emphasize once more the variation in the mortality rate for type I pneumonia in different institutions, and for different seasons. It is safe to say that the death rate for type I pneumonia is less than for either type II or type III, but the actual figures vary with the place and the time.

Type I pneumonia is amenable to serum treatment. By the use of serum, a marked reduction in death rate has been reported by many investigators. It is doubtful, however, whether the mortality rate in hospitals will ever be reduced below 10 per cent, as a considerable number of the patients are adults, already afflicted with various systemic and degenerative diseases.

It is difficult to estimate accurately the annual number of type I pneumonias in the United States. However, counting four cases for every death from pneumonia, there are about 480,000 cases of pneumonia in the United States every year. About two thirds of these are of the lobar type and approximately 30 per cent of these, or 96,000 cases, should be type I infections. With a death rate of 25 per cent there would be 24,000 fatalities from type I pneumonia alone. If the figures obtained at Rockefeller, Harlem and Bellevue hospitals are reliable, it seems that from twelve to fifteen thousand lives could be saved annually in the United States by the early and universal administration of type I serum in type I pneumonia.

Type I *unconcentrated* serum has been given a fair trial in private and hospital practice throughout the country but has not been accepted. It has been found unsatisfactory because of its low potency, the frequency of reactions, and the difficulties encountered in its administration.

Felton's concentrated serum has not yet received so extensive a trial; but already its therapeutic value rests on sound experimental and clinical evidence. We cannot agree with Blake[17] or with Cole, who state in recent articles that concentrated serum is still too much in the experimental stage to be advocated for general use. Five years' clinical experience with this product and a marked reduction of the death rate in a large group of cases have convinced us of its therapeutic efficacy.

A comparison of the death rate of patients who received concentrated serum at Bellevue Hospital with that of the patients who received unconcentrated serum at the Hospital of the Rockefeller Insitute is difficult. Cole[11] reports a mortality rate of 10.2 per cent in treated type I patients as compared with 20.1 per cent in our series. It must be borne in mind, however, that the death rate in the untreated group IV cases of his series was only 12.8 per cent, as compared with 31.3 per cent in the Bellevue series; again, in the untreated type II patients, he has reported a death rate of 28.5 per cent as against 48.9 in our series.

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[17] Blake, F. G.: The Diagnosis and Treatment of Pneumonia, New England J. Med. **202**: 991-995 (May 22) 1930.

With respect to the potency of Felton's serum, we believe that the recent reports of Felton,[15] Goodner[12] and ourselves substantiate the claim that Felton's serum is a concentrated and refined solution of immune bodies approximately ten times as potent as the average unconcentrated serum, the exact ratio depending, of course, on the respective lots of serum used in the comparison. The "unit method" of standardization is an important contribution to the specific therapy of pneumonia, as it affords the physician a fairly accurate gage of the amount of protective substance the patient is receiving.

The incidence of reactions to Felton's serum is much lower than that to unconcentrated preparations. The refined serum in its present form rarely causes thermal reactions. Serum sickness occurred in only 20.6 per cent of a series of 214 patients treated with Felton's serum at Bellevue Hospital. According to Mackenzie and Hanger,[18] 93 per cent of the patients who received unconcentrated serum under their observation developed serum sickness. Furthermore, the serum sickness that occurs after concentrated serum is rarely as severe as that which develops after the use of the unconcentrated preparation.

Finally, the simplified technic used in the administration of the concentrated serum is a great advantage. As doses of from 10 to 20 cc. are adequate, it may be prepared in small vials and readily used when indicated.

SUMMARY AND CONCLUSIONS

1. A series of 3,662 cases of pneumococcus pneumonia in adults and 271 cases in children have been studied clinically and bacteriologically. Of this series 1,161 cases were type I infections and form the basis of this study.

2. Type I pneumonia is considered as a definite clinical entity; it usually runs a typical course, terminates by crisis, and has a high incidence of complications.

3. Type I pneumonia is the most prevalent of all the types, constituting approximately one third of all adult lobar pneumonia treated in Bellevue Hospital. It is quite rare in infants under 3 years of age, but is particularly prevalent in young adults.

4. The mortality rate in 412 patients receiving no serum is 28.2 per cent. For reasons not entirely evident the death rate for type I pneumonia in Bellevue Hospital has shown a steady increase since 1921-1922, when it was 20.0 per cent, to 1928-1929, when it was 42.8 per cent. The death rate for septic type I cases without serum is 66.7 per cent.

5. The evidence in support of the therapeutic value of type I serum is presented from an experimental and clinical standpoint.

6. In a series of 171 cases treated with Huntoon's antibody solution, as compared with an equal number of control cases, the efficacy of the solution is shown by a marked reduction in mortality rate. The disadvantages of this preparation are indicated.

7. Felton's concentrated antipneumococcus serum is described and evidence is presented to show that it is often more than ten times as potent as unconcentrated preparations. A series of 239 cases of type I pneumonia treated with Felton's serum shows a death rate of 20 per cent, as compared with a mortality rate of 31 per cent in a control series of 234 untreated cases. There is a further reduction in death rate to 11.7 per cent in cases treated within seventy-two hours after onset.

8. Type I serum is no longer in the experimental stage. When administered early and in adequate dosage, the clinical results are striking. The present study demonstrates that concentrated serum possesses all the therapeutic value of the unconcentrated preparation. Furthermore, concentrated serum has a much higher potency and a lower content of chill-producing substances and horse serum proteins which make it more easily administered, and less frequently followed by chills, serum reactions and serum sickness.

33 East Sixty-First Street.

STUDIES OF THE ETIOLOGY OF THE COMMON COLD *

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AND
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In recent years widespread recognition has come about of the fact that the common cold is not a simple minor infection of the upper respiratory tract which, because of its mild symptomatology, can be conveniently disregarded. The more thorough study of this disease begins to indicate that perhaps it may be the keystone of that complex structure of ills the etiologic agents of which gain entrance to the body by way of the upper respiratory tract. A complete understanding of the pathogenesis of the common cold would not only be of value in solving the nature of this malady itself but would undoubtedly throw important light on the mechanism of all respiratory infection and even perhaps on certain diseases that are not regarded as clearly respiratory in origin.

Information concerning the etiology of the common cold is obviously the sine qua non of the understanding of this infection and of its causal relationship to other disease. Many organisms have at different times been assigned an etiologic rôle and frequently the evidence in favor of one or another agent has been impressive. Many of the organisms described have been comparatively well known and in many instances easy to study bacteriologically. To all students of upper respiratory infections the importance of such organisms has been clear, yet not one of them has maintained its position as the principal initiating agent, but all have sooner or later been assigned a secondary rôle. What, then, is the complex sequence of events in which so many microorganisms seem to participate?

For a number of years we have been studying the problem of the etiology of the common cold. We have sought from the beginning to attain our goal by a process of elimination, realizing, from the beginning, that the final word about the significance of any organism could not be said, at any stage of the investigation, but following the evidence where it seemed to lead in the hope that, in the end, the mechanism of the infection would become clear.

Our first efforts were directed toward displacing the common potential pathogens of the upper respiratory tract such as pneumococci, streptococci, Pfeiffer's bacillus, staphylococci, the gram-negative cocci, and the gram-negative filter-passing bacteria, described first by Olitsky and Gates,[1] from the position of primary importance. In pursuit of this objective a number of normal individuals were studied, and by making serial cultures over periods of several months the basic bacterial flora of their noses and throats was determined. Concurrently detailed observations were made of quantitative and qualitative changes occurring in this flora during the course of colds. From the results of this study we were led to conclude that none of the aerobic organisms are of primary etiologic significance because none appear for the first time or in significantly increased numbers during the early days of the cold. Later they may be present as important secondary invaders. This agrees with the earlier observations of Bloomfield.[2] Furthermore, for essentially the same reasons we came to the conclusion that the filter-passing anaerobes constitute part of the normal flora of the upper respiratory tract and do not have a causative relationship to the common cold.

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[18] Mackenzie, G. M., and Hanger, F. M.: Serum Disease and Serum Accidents, J. A. M. A. 94: 260-265 (Jan. 25) 1930.

* From the Department of Medicine of the Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital, New York.

* Read before the Section on Pharmacology and Therapeutics at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

Following these observations an effort was made to test the hypothesis that colds are caused by a filtrable virus, one of those mysterious agents the exact nature of whose biologic activity still remains obscure. Important evidence in favor of this view had already been brought forward by a number of investigators.[3] We decided to use animals for the experiment and in searching about for a suitable animal we discovered that anthropoid apes are supposed to catch colds. We soon found, by inquiring of workers with these animals, that the higher apes readily contract colds from human beings and furthermore that these colds are similar clinically to those observed in man.

A colony of young chimpanzees was assembled and placed under observation. To guard against accidental infection they were kept in specially organized rooms under rigid quarantine whenever experimental procedures were in progress. The animals in the stock room could not be so rigorously protected from contact infection because of insufficient facilities. Very early in our work we learned the truth of the report that anthropoids are susceptible to the human type of upper respiratory infection. When the men handling the animals have had colds, the apes in the stock room have frequently contracted the infection even though the men have always worn gauze masks. Colds of this type spread rapidly from ape to ape and the clinical picture is similar to that observed in human beings. At first there is a small amount of glairy mucus in the nostrils. By the end of the first day the animal usually appears quite sick. Lassitude is fairly striking, the eyes are puffy and drooping, a moderate to profuse nasal discharge of thin mucus runs down over the upper lip, there is definite nasal obstruction which makes it difficult for the animal to take liquid food, and breathing becomes audible. There is occasional sneezing and coughing, the appetite is impaired, and rarely there has been diarrhea. Usually there is no elevation of the temperature. By the second or third day the nasal discharge becomes mucopurulent and the throat at times shows evidence of inflammation. Recovery is usually complete in from a week to ten days. Occasionally bronchitis is a sequel and there has also been a persistence of purulent nasal discharge indicating a paranasal sinusitis.

A continuous study of the bacterial flora of the upper respiratory tract in the chimpanzee has been undertaken. The bacteria of the throat have been discovered to be surprisingly similar in man and in the ape. The usual basic organisms such as nonhemolytic streptococci and gram-negative cocci are identical in incidence. *B. pfeifferi* and *S. hemolyticus* are more frequently present in the ape than in man. As in man, pneumococci are only rarely obtained when blood plates are used as culture mediums. In cultures from the nose the staphylococcus is usually the predominating organism in man and is the same in incidence and numbers in the ape. Diphtheroids that are frequent in the nasal flora of man are lower in percentage incidence in the chimpanzee. Gram-negative filter-passing anaerobes also have been cultivated from nasal washings obtained from apes, but the exact incidence of these organisms has not been determined.

From the foregoing facts we may conclude that chimpanzees are susceptible to the human type of upper respiratory infection; that the clinical manifestations noted when these animals catch colds closely resemble those seen in man under similar conditions, and that the bacterial flora of the nose and throat of chimpanzees is practically identical with that of man.

We are therefore assured of the suitability of chimpanzees for the experimental transmission of the common cold from man to animals. The apes in each experiment were placed in strict quarantine, and a rigorous surgical technic was employed by the workers who came in contact with them. Food, utensils and cages were sterilized as far as this was possible. The animals were kept in quarantine for five or more days before being used to test the efficiency of the isolation and to exclude the possibility of latent respiratory infection. No animal under this type of isolation has contracted other than an experimental cold during the period of study.

At the conclusion of the period of preliminary observation, individuals suffering from suitable types of colds were sought out. Nasal washings from the subjects with colds were obtained by running slightly warmed buffered meat infusion broth into their nostrils and thence out through the mouth. From 10 to 20 cc. of broth was gargled and added to the nasal washing. The material was then passed rapidly through a Berkefeld V filter. The unfiltered washing was cultured aerobically and the filtrate anaerobically on blood plates, blood broth and Smith-Noguchi medium. As a further control, 0.25 cc. of filtrate was injected intracerebrally or intracisternally in rabbits in order to exclude the presence of herpes virus. As soon as possible after filtration of the nasal washing, 1 cc. of filtrate was injected with careful aseptic precautions into each nostril of the quarantined chimpanzees. For each experiment it was customary to collect two nasal washings at intervals of a few hours and to make two separate intranasal inoculations in each experimental animal.

In all, twenty-eight inoculations of chimpanzees have been made with filtered nasal washings from human beings. Of these, twenty were obtained from patients in the acute stage of the common cold and eight from normal individuals at a season of the year when colds were at their lowest incidence. Of the twenty experiments with filtrates from colds, four have been excluded since the inoculations were made in animals recently purchased which had recently suffered from respiratory infection. Of the remaining sixteen animals, seven contracted experimental colds, an incidence of 44 per cent of successful transmissions. The symptomatology of the experimental cold resembled exactly that of the spontaneous cold previously described. The usual incubation period was from thirty-six to forty-eight hours. The onset was characterized by lassitude, loss of appetite and the presence of a mucous nasal discharge. This was quickly followed by nasal obstruction, sneezing, coughing, and sometimes by inflammation of the pharyngeal mucosa. The mucous discharge eventually became mucopurulent and symptoms at times lasted as long as three weeks.

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[1] Olitsky, P. K., and Gates, F. L.: J. Exper. Med. **36:** 501 (Nov.) 1922.

[2] Bloomfield, A. L.: Bull. Johns Hopkins Hosp. **32:** 33 (Feb.) 1921.

[3] Olitsky, P. K., and McCartney, J. E.: J. Exper. Med. **38:** 427 (Oct.) 1923. Kruse, W.: München. med. Wchnschr. **61:** 1547, 1914. Foster, G. B., Jr.: The Etiology of Common Colds, J. A. M. A. **66:** 1180 (April 15) 1916.

Perhaps the most significant change observed has been the increase of activity on the part of the potential pathogens habitually present in the throat flora. Coincident with the appearance of symptoms, pneumococci, *Streptococcus hemolyticus* and *B. pfeifferi* have developed in greatly increased numbers and have spread over a wide area of the nasopharyngeal mucous membranes. These organisms become at this time conspicuous even in the nose, where they are seldom or never present under normal conditions. The same phenomenon has been observed in the spontaneous colds of apes but has not been observed in human beings.

Control experiments of two types have been performed. Chimpanzees have been inoculated with heated filtrates from colds and in no instance has an experimental cold developed. A somewhat better control has been the inoculation of the animals with filtered nasal washings from normal human beings, obtained at a time when colds were not prevalent. Following the latter inoculations, no symptoms whatever have been observed and no qualitative or quantitative change in the potentially pathogenic nasopharyngeal flora could be determined.

Filtered nasal washings from human beings suffering from colds and from normal individuals have contained gram-negative filter-passing anaerobes in nearly the same proportion of instances. No evidence, however, has been obtained that these organisms have any etiologic significance in the initiation of a cold. A number of positive results have been obtained with filtrates in which these bacteria were absent. Many times experiments have been negative with filtrates from colds which contained large numbers of these anaerobes. Furthermore, inoculation of fresh cultures of these organisms from subjects with colds has always failed to produce respiratory symptoms in the ape. Organisms of this type have been present in the filtered nasal washings of 75 per cent of normal individuals; following the inoculation of this material into apes, no symptoms have resulted.

During the course of this animal experimentation we have observed that the duration of immunity from colds has been from three to four months. During the epidemic of influenza in the early winter of 1929, the chimpanzees in the stock room contracted, from one of the keepers, a type of respiratory infection characterized by pronounced constitutional and respiratory symptoms, which was quite unlike the common cold. This occurred well within the immune period and suggests that this influenzal infection is caused by an etiologic agent different from that of the common cold. Exposure of sound animals to apes suffering from an experimental cold has resulted in a contact cold of similar nature in the exposed animal. On two occasions, experimental colds have been successfully transmitted from chimpanzee to chimpanzee.

As a consequence of the foregoing observations we have considered it advisable to attempt the experimental transmission of the common cold from man to man. For this purpose human volunteers, preferably young adults, were secured. They were placed under rigorous isolation of the type described and under the control of a nurse experienced in the application of surgical aseptic technic. A fore-period of five or more days was instituted and all articles entering the room, including food, whenever possible were sterilized. On entering quarantine the subjects were given a thorough physical examination. A study of the throat flora by daily culture and a mouse inoculation was undertaken. All physically unsuitable individuals and all who harbored possibly dangerous pathogens in their upper respiratory tracts were excluded from this type of experiment.

At the termination of the period of observation and study the selected volunteer was inoculated intranasally in the manner previously described with filtered nasal washings obtained from individuals suffering from the early stages of the common cold. In a number of instances plain sterile broth was injected intranasally to exclude and control any symptoms that might arise from the irritating effect of the broth itself. Irritation arising from this source was found to be negligible. Nine experiments of this type have been completed and in four instances colds have been successfully transmitted, a 44 per cent incidence of positive experiments, which is the same as that obtained in the study with anthropoid apes. Objective signs of upper respiratory infections were considered indispensable for the interpretation of a result as positive. These consisted in injection of the conjunctivae, profuse nasal discharge, mucopurulent postnasal discharge, frank inflammation of the nasopharynx with swelling of the lymph follicles and continuous cough. The common symptoms were stuffiness of the nose, sneezing, sore throat and headache. No fever was observed during the course of the attacks. The duration of the colds was approximately one week. Two of the subjects experienced exacerbation of their colds on being discharged from quarantine, and this was interpreted as signifying the acquisition of secondary infection due to exposure to contacts on release from quarantine. Manifest secondary infection obviously could not take place during the period of isolation and, furthermore, all individuals harboring dangerous pathogens were excluded from the tests, so that one would expect this symptomatology to be less severe than in an individual having many daily contacts and therefore being frequently exposed to secondary infection. Filter-passing anaerobes were present in all the filtered nasal washings used in the studies of human transmission, both the positive and the negative results. The varieties of anaerobes present were the same in the two instances. For the reasons previously stated, these organisms are not believed to possess primary etiologic significance.

CONCLUSIONS

The foregoing experiments lead us to certain definite conclusions. The contagious cold in human beings is caused by an invisible uncultivable, filtrable agent which in all likelihood belongs to the group of so-called submicroscopic viruses. Colds can be transmitted successfully from man to the chimpanzee and from man to man by means of Berkefeld filtrates of nasal washings obtained from individuals suffering from spontaneous colds more especially during the period of rising incidence of infection in the community. These experimental colds resemble in all respects colds spontaneously contracted in the natural environment. In apes, one of the significant effects of infection with the filtrable agent is the stimulation into greatly increased activity of any potential pathogen that may happen to be present in the upper respiratory flora. This we regard as of great importance since it seems to explain the marked secondary activity in the respiratory tract of such organisms as pneumococci, *Streptococcus hemolyticus* and Pfeiffer's bacillus, which lead to the severe sequelae which sometimes follow the common cold and influenza. In fact, the most important significance of viruses of this type seems to lie in their capacity to incite activity on the part of the more dangerous pathogenic organisms that infest the upper respiratory tract.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. SHIBLEY, KATHERINE C. MILLS AND DR. DOCHEZ, AND DRS. CECIL AND PLUMMER

Dr. Ernest E. Irons, Chicago: In 1912 I reported two fatal cases following injection of foreign proteins. One patient had typhoid and one multiple arthritis. The postmortem showed in one case multiple thrombosis, including thrombosis of the renal artery. That the number of fatal cases following this kind of therapy is small does not alter the fact that after all is said and done these patients who have such unfortunate reactions are none the less dead. The work of Drs. Cecil and Plummer is admirable and those who have followed their work from year to year have been tremendously interested in the progress they have made along with others of their colleagues. The figures that they present are striking in that if one considers relative figures the death rate in treated cases is definitely lower. In trying to translate this type of work into what may occur if serum is used generally throughout the country, one has to be a little cautious in drawing conclusions. The mortality in pneumonia varies in different years and in different localities in the same year. So statistics gathered over a period of years must be interpreted with due regard to the component years that go to make up the total numbers. Drs. Cecil and Plummer have made definite progress in the treatment of pneumonia, but I still feel that caution should be exercised in recommending the use of serum for general use all over the country.

Dr. Joseph L. Miller, Chicago: I am interested in this paper of Drs. Cecil and Plummer because it is the first time that they have used anything in pneumonia that I felt convinced was beneficial. I was quite certain that the Huntoon's antibody solution which they used formerly was nonspecific, because the same thing can be done with typhoid vaccine intravenously. Huntoon's antibody solution had no effect whatever even in 1,500 cc. doses given intramuscularly. The immunized chicken serum of Keyes worked fine but it gave chills. He took out the fibrin and it gave no more chills and was no good. Any serum that gives chills raises the question of a nonspecific reaction. I have tried Larson's serum made from immunizing sheep. He showed quite remarkable results. He sent me some to use. He said, "This has been purified." It was purified so that it did not give a chill and it did not give any results. But this work here I think is interesting and convincing. I would be interested to see, though, how this serum would work on a series of type IV cases. I surmise that a definite lowering of mortality will result in a type IV series because I believe that none of these serums are strictly type specific. I wish to call attention to what has been noted so frequently in the past, that no matter what the laboratory tells about therapeutic measures, one must determine what it does to the patient. It is good work and I feel that at last something has become available that can be used at least in type I pneumonias.

Dr. Charles J. Wehr, Bellevue, Ohio: Is the use of stock bacterins to prevent colds useless? Will it be possible to obtain a product to use in preventing colds? Is it advisable to use antipneumococcus serum for typing of the pneumonias and is it available?

Dr. Gerald S. Shibley, New York: The chimpanzee is the animal we are using, a most intelligent and cooperative animal when treated right. The "stock vaccine" prevention of colds, or the whole problem of vaccination against colds, is an open one. It may be recalled by those who have worked with such vaccines that there are a few individuals who were considered benefited and many who were not helped. Perhaps some are entirely skeptical about the value of such vaccines. If one is to accept our finding that certain organisms such as pneumococci, hemolitic streptococci and Pfeiffer's bacillus are factors in the late phases of colds, it is highly probable that vaccines containing these organisms are of value in reducing the secondary manifestations. When large series are studied there is no striking difference between vaccinated and unvaccinated groups. In the last piece of work that was done in England three or four years ago, those who were vaccinated seemed to have more colds than those who were not vaccinated. Many workers have described what they believed to be causative agents of the common cold. Back in the seventies, *Micrococcus catarrhalis* was so named because it was believed that catarrhal fever (the common cold) was caused by that organism. It is now known that this organism is present in throats all the time in large numbers. One organism after another has been accused since of being the causative agent. Every one of the ordinary upper respiratory organisms has been implicated at one time or other. Recently the newspapers have given some publicity to a discovery in Baltimore which proposes that colds are caused by a "new micrococcus." It is certain that we have been able to produce colds with material which is essentially bacteria-free in the sense that it has gone through Berkefeld filters. There is no question about these colds; they do occur and they are produced in this way. Whether this is the only way that one may produce colds is still uncertain. It is highly probable that colds may be caused by other bacteria; and in individuals who are highly susceptible to infection I think the factors of tiredness, weather, cold and so on, all may play a part.

Dr. Russell L. Cecil, New York: There is always danger that an investigator of some therapeutic agent will become too big a booster, and I certainly do not want to take that position with regard to Felton's serum. On the other hand, is there not danger of being overcautious in advising the use of a product of this kind? There are about 24,000 type I pneumonias in the United States every year. That, of course, is a rough estimate and will vary from year to year. If that is the case and if this is an apparently harmless product which will reduce that death rate from one third to two thirds, has not the time come when an effort should be made to make the serum treatment of type I pneumonia as universal as possible? After Felton's serum, serum sickness develops in only 10 or 11 per cent of cases as compared with 90 per cent after the original serum. The newer product rarely excites a chill. Of course, a test must be made for hypersensitiveness, but that is easily done. The method now recommended is to put a drop of horse serum in the patient's eye and watch for reddening of the conjunctival sac. If that does not occur in ten minutes, one is quite safe in going ahead and giving intravenous injection of the serum. We have treated more than 500 cases with Felton's serum without a single fatal accident and similar results have been obtained at the Harlem Hospital. It would seem, therefore, that the time is ripe to introduce this product into general use by the profession. Dr. Wehr asked about the use of the serum when typing is not available. The answer I usually give to that question is that I am disposed to be radical in the pneumonia of young people, as type I pneumonia is so common in young people; about 40 per cent of all the pneumonia in young adults is type I. In elderly patients about two thirds of the pneumonias fall into the type III or type IV group, so it is well to wait until typing has been carried out. The Sabin method of rapid typing seems to be quite accurate; we are using it now in Bellevue in all our cases, checking it by the old method. By the Sabin method it is possible to get a report within three or four hours after the sputum has been collected.

EXTRA-UTERINE PREGNANCY

A STUDY OF ONE HUNDRED AND SIXTY-SEVEN CONSECUTIVE CASES [*]

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Extra-uterine pregnancy is a fairly common gynecologic disorder, which is sometimes easily recognized. Operations for this condition are notorious for the many diagnostic disappointments that attend them. Schumann, in his monograph on this subject, asserts that even in the hands of expert gynecologists a high percentage of diagnostic errors feature the disorder. He continues with the statement that even when rupture has actually taken place the clinical and physical signs so frequently parallel those of other abdominal lesions that it is difficult to form a clear conception of the condition existing within the peritoneal cavity. Diverse opinions regarding the etiology of ectopic gestation are also familiar to all students of medicine. Because of the striking features of the so-called textbook cases, extra-uterine pregnancy has become one of the most dramatic disorders encountered by the gynecologist and obstetrician. On the other hand, instances are not infrequently observed wherein the clinical course is no more violent than in the average case of pelvic inflammatory disease. In order to clarify the apparently confusing elements of this gynecologic problem, a study of 167 consecutive patients with extra-uterine pregnancy who underwent operation in the Gynecologic Service of the University of Pennsylvania Hospital has been undertaken.

While, on the whole, excellent records were available for this investigation, it was inevitable that occasional histories were incomplete in some details. When operation was performed as soon as possible after admission, preoperative diagnoses and many other observations were not always recorded. Furthermore, many of the more recently adopted laboratory procedures were not available for the earlier cases of this series. In other instances, ambiguous statements required interpretation. Finally, the present conception of tubal abortion was not prevalent when most of these patients came to our service, and these statistics, no doubt, include many cases diagnosed as unruptured tubal pregnancies, which would now be regarded as tubal abortions.

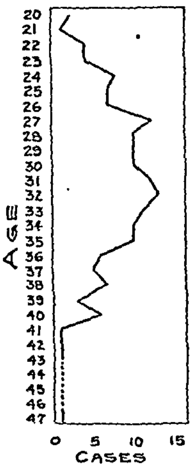

Chart 1.—Age incidence of extra-uterine pregnancy.

The patients varied in age from 20 to 47 years. The greatest number occurred between the ages of 27 and 35 years inclusive. Thirty-one had never before been pregnant. Two had had previous ectopic pregnancies. One hundred and six, or 76 per cent, had previously conceived normally. Two patients had given birth to nine children; two, to ten; one, to eleven; and one, to twelve. The largest number of cases occurred among multiparas, but as the parity increased the incidence decreased.

PREVIOUS INTRA-UTERINE PREGNANCIES

The time of establishment of puberty and the character of menstruation were studied with the idea of determining the influence of genital hypoplasia on the occurrence of ectopic pregnancy. Fourteen years was considered to be the limit for the normal establishment of menstruation.

In endeavoring to discover the part played by previous inflammation of the pelvic organs, we considered, first, the percentage of cases in which the history was in the least degree suggestive of previous pelvic trouble; secondly, the condition of the opposite adnexa as found and recorded at operation. Forty-eight of 131 patients complained of pelvic symptoms or had had previous pelvic operations, including appendectomy, before the occurrence of this disease. In 46 per cent of 123 cases there was some abnormality of other pelvic structures.

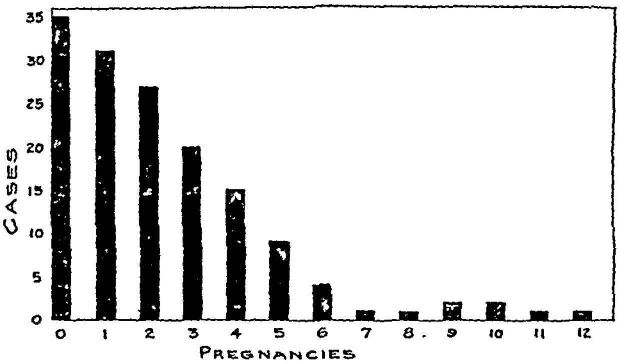

Chart 2.—Previous intra-uterine pregnancies.

Table 1.—*Menstruation*

	Cases	Per Cent
Menses established by 14 years	90	68
Menses established after 14 years	41	32
Character	Cases	Per Cent
Regular	110	82
Irregular	24	18
Quantity	Cases	Per Cent
Normal	32	57.0
Scant	17	30.5
*Profuse	7	12.5

* Includes patients who complained of menorrhagia instead of metrorrhagia.

Table 2.—*Condition Opposite Adnexa*

	Cases	Per Cent
Cases	123	
Normal	66	
Abnormal	57	
Gross Pathologic Diagnoses	Cases	Per Cent
Previously removed	4	7.0
Salpingitis	24	42.0
Perisalpingitis	5	8.8
Pyosalpinx	2	3.5
Hydrosalpinx	14	24.7
Hematosalpinx	3	5.4
Ovarian cyst	1	1.7
Parovarian cyst	1	1.7
Cystic ovary	2	3.5
Bicornate uterus	1	1.7

One patient had been operated on previously for tuberculous salpingitis, and two had undergone operations for former extra-uterine pregnancies.

Pain was localized in the right lower part of the abdomen fifty-one times; in the left lower part of the abdomen, forty-three times, and was recorded as being bilateral, or generalized abdominal pain in fifty-eight cases. Abortion had been attempted by twelve patients, and syncope was reported positively in 24 per cent of the series. Although irregular bleeding did not occur in eleven patients, seven of these stated that they had observed an increase in the quantity and duration of the menstrual flow. Urinary disturbances were present in 34 per cent of the cases, and nausea occurred in 46.3 per cent of the series. The passage of uterine casts was reliably noted on only three occasions. In most instances, pain had been present from one week to two months before operation. Symptoms of sufficient severity to require immediate hospitalization were present in comparatively few individuals.

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[*] From the Department of Obstetrics and Gynecology, University of Pennsylvania School of Medicine.

[*] Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

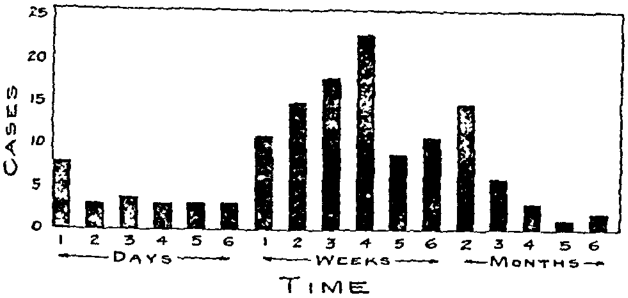

Chart 3.—Time from onset of pain to operation in 143 cases.

Table 3.—*Missed Periods Before Onset of Pain in 127 Cases*

	Cases	Per Cent
No amenorrhea	32	25 3
1 week after missed period	10	8 0
2 weeks after missed period	16	12.6
3 weeks after missed period	7	5.5
4 weeks after missed period	31	24.4
5 weeks after missed period	11	8.6
6 weeks after missed period	4	3 1
7 weeks after missed period	3	2.4
8 weeks after missed period	4	3 1
9 weeks after missed period	0	0 0
10 weeks after missed period	3	2 3
11 weeks after missed period	1	0 8
12 weeks after missed period	3	2.3
15 weeks after missed period	1	0 8
16 weeks after missed period	1	0.8

In the majority of instances, one or more periods had been missed before the occurrence of pain. However, thirty-two patients, or 25 per cent, stated that they did not have amenorrhea.

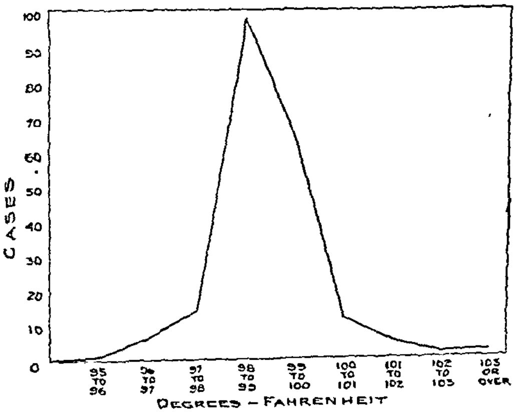

Chart 4.—Temperature on admission.

The temperature and pulse rate usually varied only slightly from normal. On admission, most of the patients had temperatures of between 98 and 100 F., while the pulse rate was commonly found to be between 80 and 100 beats per minute. The average leukocyte count recorded in 108 cases was 11,500, and the average red cell count reported in 63 cases was 3,741,000. In 104 cases, the average hemoglobin estimation was 69 per cent. Sedimentation time was taken in only 10 cases. The most rapid reading was 60 minutes, and the longest time required for sedimentation was 142 minutes, the average time being 68.7 minutes. It should be remembered in this connection that in spite of the great variations in sedimentation times as well as in leukocyte counts, these tests, if considered in relation to symptoms, physical observations and the nurse's records, are invaluable aids in arriving at an understanding of existing conditions.

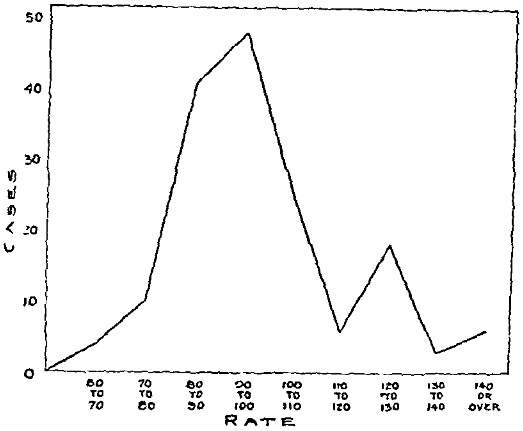

Chart 5.—Pulse on admission.

Our records show that, prior to operation, pelvic masses were found in 85.5 per cent of cases. The cervix was found to be softened in 49 per cent of the patients, and the fundus was enlarged in 57 per cent of the cases. Anteflexion of the uterus occurred in 76 per cent of the series. Cullen's sign, bluish discoloration about the umbilicus, was noted only once.

Table 4.—*Pelvic Masses in 124 Cases*

Site	Cases	Per Cent
Right lower abdomen	46	37.0
Left lower abdomen	36	29.0
Bilateral	7	5.7
Culdesac	17	13.7
None palpable	18	14.6

Table 5.—*Preoperative Diagnostic Errors*

	Number	Per Cent
Cases	62	....
Pelvic inflammatory disease	12	50.0
Pelvic hematocele *	1	4.0
Pelvic abscess †	2	8.5
Ovarian cyst	2	8.5
Myoma †	3	12.5
Retained secundines	1	4.0
Retroflexion of uterus †	3	12.5

* Secondary to old ruptured extra-uterine pregnancy.

† Unsuspected unruptured ectopic pregnancy, associated with these conditions.

Diagnostic errors occurred in 38.7 per cent of cases in which the preoperative diagnosis was recorded.

The occurrence of these lesions was a little greater on the right side, and pregnancy in the ampullar portion of the tube, with rupture, was the most common operative finding. Many of the patients were operated on before the technic of transfusion, which was practiced only five times in this sequence of cases, had attained its present degree of perfection.

One hundred and thirty-two of the incisions healed by first intention. In only 3 per cent of this series did infection occur below the fascial plane.

Table 6.—*Operative Observations in 151 Cases*

	Right Per Cent	Left Per Cent
Unruptured ampullar	12.9	6.6
Ruptured ampullar	25.8	22.6
Unruptured isthmic	0.7	1.1
Ruptured isthmic	5.8	5.1
Unruptured interstitial	0 0	0 0
Ruptured interstitial	0.7	2 6
Unruptured (site not stated)	0.7	1.9
Ruptured (site not stated)	1.9	0.7
Tubal abortion	5.1	5.8
Total	53.6	46.4

Table 7.—*Operative Observations in 154 Cases*

	Unruptured		Ruptured	
	Number	Per Cent	Number	Per Cent
Ampullar	30	19.6	75	49.0
Isthmic	3	1.8	16	10.4
Interstitial	0	0.0	6	3.8
Bilateral	1	0.6	0	0.0
Tubal abortion	17	11.1	0	0.0
Ovarian	2	1.3	0	0.0
Tubo-ovarian	3	1.8	0	0.0
Pregnant horn bicornate uterus	1	0.6	0	0.0

Table 8.—*Wound Healing*

	Number	Per Cent
Primary union	132	83.0
A infection	20	12.5
B infection	3	1.9
C infection	2	1.3
Drained	2	1.3

The average preoperative period was 3.4 days, and the mean postoperative time was 22.7 days. The figures, in both instances, have been increased by the very small group of cases in which the diagnosis was obscured by intra-abdominal complicating diseases, which also were responsible for tedious and long drawn out convalescences. Eight postoperative complications, exclusive of wound infections, were encountered. Three of these resulted fatally.

The mortality rate for the entire series was 1.8 per cent. There were three deaths, none of which occurred in typical cases. In no instance was death due to hemorrhage or shock. One patient, with a pyosalpinx on the opposite side and general peritonitis, died two days after operation as the result of the latter complication. The second death occurred eighteen days after operation, in a patient who developed typhoid on the third day after operation. The third patient to die was admitted with intestinal obstruction, complicating an old ruptured extra-uterine pregnancy. She died thirty hours after operation, apparently of cardiac failure. Curiously, none of these deaths took place in the type of case usually regarded as most urgent. Two of the deaths were in patients in whom rupture had taken place in the ampullar portions of the tubes and had become encapsulated. In one case the site of the rupture was not mentioned.

A review of these statistics suggested the practicability of a clinical classification of extra-uterine pregnancy which should provide for three groups. The first of these involves obscure cases of long standing rupture in which encapsulation of the products of conception has taken place. The second includes nonurgent cases in which there is no necessity for immediately instituting treatment. The third group is that showing signs of alarming internal hemorrhage, and in which prompt and speedy operation for the control of bleeding vessels is often required.

OBSCURE CASES

In the group of obscure cases, composed of 6.5 per cent of the series, rupture had apparently occurred from three to six months prior to the admission of the patient to the hospital. Infection of the pelvic hematoma, or adhesions to surrounding viscera, had produced signs and symptoms of other more common abdominal disorders, which in many instances masked characteristic features which otherwise might have led to the recognition of extra-uterine pregnancy. The secondary conditions most frequently distorting the clinical picture were pelvic abscess, pelvic hematocele, tubo-ovarian abscess, and intestinal obstruction. Fortunately there is usually no need, here, for haste in operating, and careful study, particularly of the early history of the disease, will furnish a clue to the real underlying lesion in a large proportion of cases.

URGENT AND NONURGENT CASES

In dividing the remainder of our series into urgent and nonurgent groups, a pulse rate of above 110 beats a minute was accepted as a fair criterion for urgency. Since many women normally exhibit pulse rates of approximately 100 beats a minute, it is obvious that such persons may well show an elevation of 10 or 20 beats a minute, either on account of pain or from excitement, without indicating that their condition is extreme. It therefore is inevitable that there is some degree of overlapping within the groups so selected. Nevertheless, by careful computation of the most typical features of each group, differential criteria can be established.

Table 9.—*Postoperative Complications Excluding Wound Infections*

Complications	Number	Deaths
Obstruction	3	1
Abscess lesser peritoneal cavity	1	1
Typhoid on 3d day	1	Died in medical ward, 14th day
Pericarditis	1	0
Pleuritis	1	0
Abscess of anterior abdominal wall	1	0

Table 10.—*Comparison of Nonurgent and Urgent Groups*

	Nonurgent, Per Cent	Urgent, Per Cent
Previously pregnant	71.0	76.0
First pregnancy	29.0	24.0
History of previous pelvic disease	40.6	43.3
Periods delayed or irregular	33.3	39.1
Nausea present	46.0	45.7
Opposite side diseased	44.6	51.4
Uterus anteflexed	67.2	64.3
Operated on admission	4.7	45.0
Correct preoperative diagnosis	50.0	93.3
Syncope present	11.5	46.4
Average age	29.4 years	31.8 years
Average preoperative hospital days	3.4	1 4
Mortality	0.0	0.0
Number of cases	116	29

In the urgent group, the percentage of unruptured pregnancies is extremely low and represents patients who, while their condition is not grave, because of individual deviations from the normal cannot be distinguished from those requiring emergency treatment. The remainder in this category are patients in whom rupture had occurred. The nonurgent group, which comprises 74.8 per cent of 155 cases in the entire series susceptible of this classification, contains practically all of the patients with unruptured gestation sacs, and tubal abortions. The fact that a high percentage of ruptured ampullar pregnancies falls within this classification is also in accordance with clinical experience.

Statistics concerning age, previous pregnancies, former inflammation and pelvic changes are so similar in both the urgent and the nonurgent groups that they are of little value in differential diagnosis. However, in the series of urgent cases most patients had missed not more than two periods, while in the nonurgent group there had been as high as five missed periods. Furthermore, in the cases classified as urgent, the duration of pain was in few instances longer than one week before admission to the hospital, while in the nonurgent group the majority of individuals were cognizant of pain for from three weeks to three months. Finally, syncope had occurred in only 11.5 per cent of the nonurgent group, whereas in the category of urgency 46.4 per cent of patients had fainted one or more times. Thus, in addition to the pulse rate, there are three clean cut differentiae for these two types. On one hand, the urgent cases gave a history of a quickly developing critical condition, early in the pregnancy, producing symptoms which developed so rapidly that hospitalization was resorted to in a very short period of time. The clinical picture was so striking that 45 per cent of these patients were operated upon on admission. This is the group which presents the classic picture of extra-uterine pregnancy and which in this series was correctly diagnosed in 93.3 per cent of instances. The average preoperative time was only 1.4 days. On the other hand, many patients in the nonurgent group had been pregnant several months before entering the hospital. Moreover, symptoms had been present for a relatively long period of time before hospitalization became necessary. The average preoperative period in this nonurgent group was 3.4 days, only 4.7 per cent being operated upon on admission. Correct preoperative diagnosis was reported in only 50 per cent of this group. In many of these patients, extra-uterine pregnancy was mistaken for small ovarian cysts, or pelvic inflammatory disease, or was unsuspectedly discovered in the course of an operation for some other pelvic condition as, for example, myoma.

Table 11.—*Frequency of Various Lesions*

Diagnoses	Nonurgent Number	Nonurgent Per Cent	Urgent Number	Urgent Per Cent
Unruptured ampullar	27	95.0	1	5.0
Ruptured ampullar	55	83.5	11	16.5
Tubal abortion	14	83.0	3	17.0
Unruptured isthmic	2	66.6	1	33.3
Ruptured isthmic	8	50.0	8	50.0
Unruptured interstitial	2	100.0	0	0.0
Ruptured interstitial	0	0.0	6	100.0
Ovarian	2	100.0	0	0.0
Unruptured tubo-ovarian	1	100 0	0	0.0
Ruptured tubo-ovarian	1	100.0	0	0.0
Pregnant horn bicornate uterus	1	100.0	0	0.0

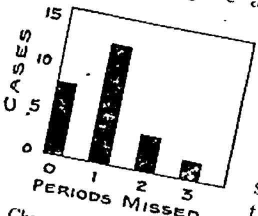

Chart 6.—Urgent group, periods missed on admission.

Ectopic gestation is seen as often in women who have had normal intra-uterine pregnancies as in those who have never been pregnant. Previous pelvic disease, while present more frequently in this series than in an unselected group of women, scarcely occurs with sufficient regularity to be regarded as the sole etiologic factor in a great number of instances. It is quite plausible that pregnancy in tubal diverticula, while reported only once in this investigation, may have sometimes been overlooked. The association of this condition with tubal gestation was not recognized until long after the earlier cases had passed through the clinic. Speedy operations, distortion of specimens by fixing solutions, as well as by the pregnancy itself, and the destruction of the involved portions of the tube by its rupture, make it probable that some diverticula escaped detection. If the occurrence of undifferentiated müllerian tissue lining the tube were to be considered as the cause of pregnancy developing in this situation, it would be remarkable that in 70 per cent of women so deformed the fertilized ova on previous occasions should have successfully traversed the portion of the genital tract so affected and have developed inside the uterus. The common occurrence of anteflexion of the uterus, scant, irregular menses, and late establishment of puberty suggest hypoplasia of the internal genitalia as a factor in some cases. While the etiology of extra-uterine pregnancy cannot be attributed exclusively to any of these causes, it appears reasonable that some condition susceptible of being produced by any one or a combination of these abnormalities may be responsible for its occurrence.

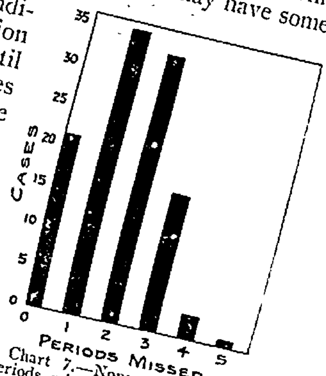

Chart 7.—Nonurgent group: periods missed on admission in 110 cases.

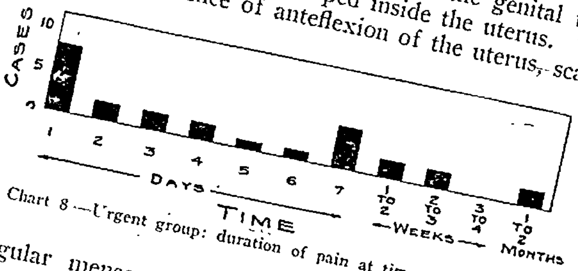

Chart 8.—Urgent group: duration of pain at time of admission.

Extra-uterine pregnancy can occur at any time during the child-bearing period of a woman's life. However, we encountered it most frequently between the ages of 27 and 35 years, inclusive.

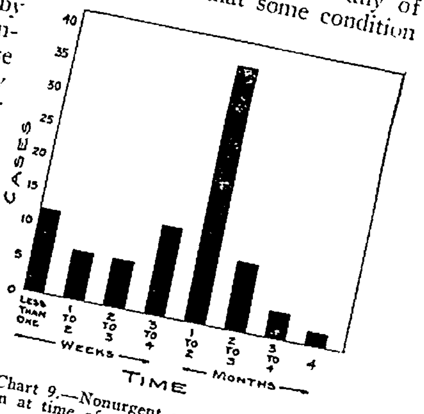

Chart 9.—Nonurgent group: duration of pain at time of admission.

From the standpoint of case history, the salient diagnostic features are a variable period of amenorrhea; recurrent pain consistently situated on either side of the lower part of the abdomen; and scant, irregular bleeding. Moderate decrease in sedimentation time, a mild leukocytosis, and symptoms characteristic of pregnancy are confirmatory observations. Nausea and urinary disturbances are frequently observed. Objectively, there occur discoloration of the cervix, slight enlargement and softening of the fundus, and the presence in the pelvis of an exquisitely tender mass, either boggy or discrete and gradually growing. These are the only signs that were found in this series with sufficient regularity to warrant being accepted as specific diagnostic aids, and on these depends the recognition of extra-uterine pregnancy.

SUMMARY AND CONCLUSIONS

1. The series of 167 cases of extra-uterine pregnancy which has been studied shows that the average case does not conform to the typical picture of the disease.
2. Ectopic gestation may occur at any time within the child-bearing period but is seen most frequently between the ages of 27 and 35 years.
3. The high proportion of anteflexed uteri and irregular or delayed menses suggests frequent association of genital hypoplasia.
4. Parity is no guarantee against future ectopic pregnancy, *but the probability of its occurrence is in inverse* proportion to the number of intra-uterine pregnancies.
5. Although in 80.5 per cent of these patients there had been no complaints referable to the pelvis previous to this extra-uterine gestation, in 46.3 per cent of the number there had been some abnormality of the opposite adnexa.
6. Syncope occurred in 24 per cent of the patients, and in most cases pain had been present from one to six weeks before admission to the hospital.
7. The majority of patients were admitted before three periods had been missed.
8. A temperature at admission from normal to 100 F. and a pulse rate ranging from 80 to 100 beats a minute were observed most frequently.
9. Pelvic masses were found in 85.5 per cent of cases, and ruptured ampullar pregnancy was the commonest lesion.
10. The preoperative diagnosis was correct in 61.3 per cent of the sixty-two recorded instances.
11. The average preoperative period was 3.4 hospital days; the average postoperative time was 22.7 hospital days.
12. There was a mortality of 1.8 per cent. No deaths could be attributed to hemorrhage.
13. Classification into obscure, nonurgent and urgent cases is suggested.
14. The etiology probably depends on a variety of factors, either alone or in combination.
15. The *most reliable basis for diagnosis rests on* history of amenorrhea; recurring, consistently localized lower abdominal pain; metrorrhagia; signs of pregnancy, and a typical pelvic mass.

133 South Thirty-Sixth Street.

ABSTRACT OF DISCUSSION

Dr. Paul Titus, Pittsburgh: The chief object of a statistical study should be an effort to develop a clinical point. Dr. Behney has succeeded admirably in this by showing the more important etiologic and symptomatic factors that will help in making early clinical diagnoses of ectopic pregnancy. One helpful point might be added to his that in many of these cases in which elevation of temperature and of pulse rate with leukocytosis occur, the blood sedimentation test is of immeasurable value in helping one to make a differential diagnosis between unruptured or recently ruptured ectopic pregnancy and an acute inflammatory process. The presence of free blood in the peritoneal cavity, of course, accounts for the observations so easily confused with those of an inflammatory process. However, the sedimentation test remains prolonged within normal ranges rather than being shortened, as in an acute inflammation. This test is so consistent that I have come to place a great deal of dependence on it.

Dr. C. Hollister Judd, Detroit: In diagnosis, can any one do better than B. C. Hirst and Howard Kelley, who diagnose correctly about 75 per cent of their cases of rupture? Of the cases in which rupture does not occur, another authority says, "Unless the case is typical a correct diagnosis is a fortunate incident." Hirst's case, quoted by Kelley, illustrates most emphatically this great difficulty. He had in his hands (the abdomen being open for some other pelvic condition) a pregnant tube of four weeks, and it did not show the pregnancy. The patient went home, and a few weeks later she returned to the hospital with a ruptured extra-uterine pregnancy. In my own cases, the predominant etiologic factor has been gonorrhea. However, as the author says, the cause of a large percentage of cases has still to be accounted for. There are many facts and considerable embryologic data to support his views. Hoffman's case of tubal pregnancy caused by a diverticulum of the tube is in the records. Accessory ostia are not rare. Infantile uterus, ovaries and tubes are frequently seen. In Schoenholz's examination of thirty-two tubes, twenty-six showed a mesh or diverticulum formation which he considers paramount etiologically—also congenital. While it is difficult to prove that embryologic abnormalities of the ovum can cause extra-uterine or ectopic pregnancies, still one can reason in that direction and remain quite logical. The frequent twining of the embryo and various abnormalities said to be present in from 25 to 50 per cent of the cases may be due to errors of maturation, fertilization or ovum diseases. Such conditions could, in turn, cause the embryo to be too large to continue its passage through the tube, or to stick in the constricted cornual portion where likely there are no peristaltic waves. In a case of cornual pregnancy in which I operated a few years ago, no other explanation was offered, the pelvic organs being perfectly normal. Perhaps some cervical pregnancies and abdominal pregnancies could be explained in this manner; in other words, it is just as reasonable to blame the ovum as the mother's genital structure. Bamber reports 150 cases of extra-uterine pregnancy, and says they are increasing as the result of abortions and contraceptives. The abortions might damage the mother's organs; likely the contraceptives could damage the spermatozoa without killing them, and so produce imperfect fertilization.

Dr. W. B. Thompson, Los Angeles: I disagree on the point of nonurgency of isthmian ectopic pregnancies. The tissues, which will not allow for expansion of the growing ovum and when blood vessels are sizable, would seem to me to be a poor place to leave a pregnancy for further bleeding to take place. I was interested in the manner in which his statistics were worked out. They were obtained in a university hospital; ours in a large general hospital where interns and attending men frequently failed to record observations sufficiently clearly to make detailed analyses possible. As to symptomatology, pain was present in 86 per cent of sixty-nine cases studied. Of *particular interest was the fact that shoulder* pain was present in 21 per cent of the cases and was so severe at times as to give rise to a diagnosis of gallbladder disease. Fainting and vomiting were encountered the same number of times; namely, in twenty-three, or 36 per cent, of cases. The temperature range was subnormal in twenty-two cases, approximately normal in four, and elevations from 99 to a high of 103.6 F. in the remaining cases, with an average of 98.8 F. The pulse range was from 70 to 80 in two cases, a high of 160, an average of 106.9. The blood picture, which primarily called attention to the value of looking over the cases, averaged 14,000 white cells, a high point of 48,000, a low of 5,100. *The red blood cells* and hemoglobin depended on the amount of blood loss. The treatment has been immediate operation on diagnosis. Sixty of these cases were ruptured. All the patients were operated on as soon as the diagnosis was arrived at, and there were no deaths. Of the nine unruptured ectopic pregnancies, it *is* impossible to say how many were incidental to other operations, because attending men have the habit, sometimes, of putting down their preoperative diagnosis after the operation is over. That there were nine unruptured ectopic pregnancies is a rather high incidence in such an unfortunate occurrence.

Dr. F. F. Lawrence, Columbus, Ohio: Ectopic pregnancy is much more common than it is usually credited with being. It never occurs in a normal tube; there must be a previous pathologic condition, such as destruction of the ciliated epithelium lining the tube, peritubal adhesions, or kinking of the tube, which prevents the normal peristalsis of the tube, which is always toward the uterus, causing the ovum to be blocked or stopped within the tube. The diagnosis of tubal pregnancy should be made before rupture, because the fallacy that women never die from ruptured tubal pregnancy as the result of hemorrhage is one of the worst fallacies. I have seen several such cases. A positive history of previous tubal disease will be elicited in all cases of tubal pregnancy, if carefully sought for. I have never seen a case in which I could not get a clear-cut history of previous tubal disease. Hence, any type of therapy that attempts to save the tube and prevent operation is an error, because it keeps the life of the woman in constant jeopardy with the possibility of ectopic hemorrhage and fatality. The tube is useless already; the epithelium has been destroyed; the lumen has been occluded, or other pathologic change has developed within the tube and about the tube, which makes its future use nil. It is not frequent for tubal pregnancy to occur bilaterally. I have reported twelve such cases. They are not always found unruptured. In three, one tube was ruptured; the other was not ruptured. In two, both tubes were ruptured, and in one of those the woman died from the hemorrhage before operation could be performed. A diagnosis had been made. Premenstrual pain, an ill defined sense of discomfort through the pelvis, sometimes a period of sterility, although that is not necessary as I have had one case occur eight months after a normal delivery, the signs of pregnancy sharply defined, especially in the breast, a hypersensitive cervix, especially a hypersensitive culdesac on the side in which the tubal pregnancy occurs, and the suspicion of tubal pregnancy is pretty well defined. Medical students and interns should be taught to make careful, thorough examinations gently. It is not uncommon to see a man attempt to examine both sides of the pelvis with his right hand or his left hand. It can't be done gently and safely or thoroughly. The right side must be examined with the right finger and the left side with the left finger in the vagina.

Dr. Lilian K. P. Farrar, New York: Any one who sees a large number of tubal pregnancies sees more atypical than typical cases. Dr. Lawrence said that "the tube is always abnormal." I have seen two or three instances, and I know of a number more, in which the pregnancy was due to a large ovum, implantation evidently coming from the ovary on the opposite side of the pelvis and the delay in passing through the tube, with the pregnancy due to the delay. The tube had been removed on the opposite side and the pregnancy passed into a perfectly normal tube where the tubal pregnancy came. I dislike to take out the only tube that a woman has if she has a tubal pregnancy. I think the justification of doing an implantation into the uterus is sufficient from the fact that cases have been reported of normal intra-uterine pregnancy from such implantation. I remember especially Dr. Thomas Watkins having two cases occurring after resection of the tube in which the tubal pregnancy occurred and then the outer half or two thirds was implanted in the uterus. One of the speakers mentioned differential diagnosis, an examiner having the tube in his hand and not being able to make the diagnosis. I know of three instances in which there was a fimbrial pregnancy; the tube was palpated by good examiners and was felt for the length of the tube, and the diagnosis was made of trouble in the ovaries due to an unruptured fimbrial pregnancy. For several years in suspected cases of ectopic pregnancy the daily white count has been followed, and in unruptured tubal pregnancy, especially tubal abortion, there is a leakage of blood into the pelvis, and there is a high count. With leakage in excessive amount the white count would run up to 20, 30 or even 40 or 50 thousand and drop down again within twenty-four or forty-eight hours to a normal count. The count has been of considerable value when there has been a suspected pregnancy and when this fluctuation has been found in connection with the sedimentation test, which, of itself, is of great value.

Dr. William J. Cassidy, Detroit: After barnstorming the sticks for a great many years and seeing the multiplicity of operations in the metropolitan areas and in the small cabins out in the country, and looking back over a long series of cases, I cannot agree with some of my friends regarding tubal conditions. I defy any surgeon at operation to tell from the general appearance of a tube from the outside as to whether it is infected. I think it is bad policy to advocate radical removal to the younger men. This massacre and mutilation of the woman has occurred simply because she has a pair of tubes and ovaries. They were removed whether she had epilepsy or dropsy. Conservative measures should be adopted rather than the advocacy of radicalism. As to diagnosis, I have had three cases lately—two in unmarried women and one in a married woman, who had the so-called typical clinical symptoms of ectopic pregnancy. They were ruptured ovarian follicles and not tubal pregnancies. There can be all the signs and symptoms—acute, sudden abdominal pain with a previous disturbance in the menstrual cycle, blanching, acute abdominal hemorrhage, massive in type, often simulating all the signs of an acute ruptured tube. Given a patient with an acute ruptured tube, with an abdomen full of blood, the appendix should not be taken out unless one wants to add greatly to one's mortality. There never was an appendectomy done yet that was perfectly aseptic. The abdomen is full of blood and it will be scattered, often with a general peritonitis. I have seen that happen in several instances. These patients frequently come into the hospital late. They are moribund. A history cannot always be obtained. I have seen these cases diagnosed ruptured ectopic pregnancy when there was a ruptured diaphragm or ruptured papillary cystadenoma of the ovary. In women of the child-bearing age one cannot tell whether she has a rupture from a papillary cystadenoma of the ovary which is bleeding rather furiously or a tubal rupture. The only thing one can do is to examine one's patients carefully and get a careful history.

Dr. C. M. Echols, Milwaukee: Looking back over thirty years since my medical student days, it seems to me that there has been strikingly little added to our knowledge of ectopic pregnancy. Now and then some distinguished surgeon or gynecologist has come forward with a suggestion growing out of his own experience that has caused an excited discussion. Twenty years ago Hunter Robb advised that in all these fulminating cases of acute hemorrhage from ruptured tubal pregnancy one should wait until the shock had passed before doing any operation. That suggestion caused a great deal of discussion. It was not unanimously accepted and has not been yet. In my part of the country the men in general practice who see these patients first are much abler to make a diagnosis now than they were in former years. They have been trained to look for the condition. In my earlier cases, most of those which Dr. Behney says were not urgent, curettement had been done before they came to me, the physician being under the impression that the patient was suffering from an incomplete abortion. After the curettement the patients stopped bleeding for a day or two and then resumed bleeding and afterward came in for further examination and a correct diagnosis. Hunter Robb's suggestion was not the only radical one. Many years ago a distinguished gynecologist suggested that in all cases of ruptured ectopic pregnancy it might be well to consider removing the opposite tube lest that tube might later become pregnant. In discussion I told him that I had strong personal objection to that procedure, because my own wife had given birth to all five of our children after she had lost a tube from ectopic pregnancy. As to the allegation that every tube is a damaged tube before it becomes pregnant, possibly that is true, but it could be determined only by very careful microscopic study, perhaps in serial sections. I certainly have not been able to discover any gross pathologic changes in my eighty-seven cases, except in three in which there was pregnancy in a rudimentary horn of the uterus.

Dr. B. H. Breakstone, Chicago: Treatment is often delayed because of uncertain diagnosis, especially in extra-uterine pregnancies. I would rather operate on a ruptured tubal pregnancy, not being sure of a diagnosis, than to have a patient die of hemorrhage. In all gynecologic practice, it is wise to believe every woman of child-bearing age to be pregnant unless one can prove otherwise. Whether she is married or single does not make any difference. Almost any sudden death in a young woman of child-bearing age of a vague abdominal trouble is in all probability an untreated and an unsuspected ruptured extra-uterine pregnancy, especially tubal. If a young woman of child-bearing age who has missed a period and complains of some trouble in the lower part of the abdomen, or a young woman who has always been previously healthy, who has missed a period, never before has fainted in her life, and suddenly faints, she should be rushed to the hospital and operated on, because in 99 cases out of 100 that is a ruptured extra-uterine pregnancy. Many women's lives will be saved if this rule is followed.

Dr. Charles A. Behney, Philadelphia: In order to prevent a mistaken impression, may I add that I do not advocate the nonoperative treatment of extra-uterine pregnancy. Certain patients, classified as urgent, require operation as soon as possible. In these there is no diagnostic difficulty. Patients in whom the symptoms are not clear cut do not require immediate operation. In these the diagnosis can generally be made by careful study and the treatment can be deferred with safety until this has been done.

HYSTERECTOMY

CLINICAL INVESTIGATION OF 1,851 CONSECUTIVE OPERATIONS *

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Hysterectomy has in recent years become an increasingly popular operative procedure. The frequency with which the operation is done today warrants a careful, unprejudiced, clinical investigation of a considerable number of consecutive cases in which the operation has been performed under similar conditions, in order to estimate correctly the true advantages and disadvantages of this surgical resource.

The rapid development of abdominal surgery and the present comparative safety of the operation may lead to some erroneous conclusions unless the precaution of studying the clinical results is frequently taken.

The refinement of the operation of hysterectomy is certainly among the first of those many laudable advances in surgery which now save and prolong life. W. L. Atlee in 1844 successfully removed a uterus containing a fibroid, and John Bellinger in 1846 did the first planned hysterectomy, though his patient died. Burnham, between 1853 and 1857, did several similar operations and Gilman Kimball in 1883 did eleven such operations with five deaths. T. A. Emmet in 1884 used the vesical peritoneum to peritonealize the cervical stump. Mary A. D. Jones in 1888 did the first panhysterectomy. Stimson in 1889 insisted on the ligation of the individual uterine vessels, avoiding the mass ligature, simplifying the operation and rendering it safer. In 1882, Ahlfeld collected reports of sixty-six abdominal hysterectomies with thirteen deaths.

The general mortality of the present day is extremely difficult to estimate. In the first place a sufficiently large series of operations must be reported to be of any value, and such series are often of selected cases from large clinics by the most expert operators. Their results cannot be taken to give an accurate picture of the present status of the operation in the hands of the average operator.

Graves reports a mortality of 0.79 per cent in 754 supravaginal amputations and of 1.5 per cent in 1,399 cases including all conditions; Chapin, 1.7 per cent in 182 cases, two thirds of which were done for inflammatory conditions. Masson at the Mayo Clinic reported 1,643 hysterectomies for fibroids in 1926, with 1.88 per cent mortality, and in 1927 stated that they had done 229 total hysterectomies with 1.3 per cent, and 217 subtotal operations with 1.8 per cent mortality. Clark and Bauer report about a 2 per cent mortality and Essen-Moller 2 per cent in 799 subtotal, and 6.9 per cent in 117 total hysterectomies. Howard A. Kelly and Thomas S. Cullen, in their monumental work on uterine fibroids, reported a 5.5 per cent mortality in 901 hysterectomies, one fifth of which were panhysterectomies; a later series showed less than a 1 per cent mortality.

These figures indicate that in the best hands at the present time hysterectomy should have a mortality of not over 2.5 or 3 per cent in the selected cases, but the mortality alone does not tell the entire story. The morbidity, immediate and late, and the postoperative complications must be carefully considered, and are, unfortunately, rarely discussed.

There is absolutely no question that the removal of the uterus when definitely indicated is of great benefit to the patient, as frequently by no other means can she be returned to a state of lasting health. However, it is not improbable that as the result of enthusiasm and because of the comparative safety of hysterectomy, many uteri are needlessly sacrificed and the patient subjected to a much more drastic operative procedure than necessary, or even advisable, for her future welfare and comfort.

Every patient must be considered a distinct problem in herself and studied individually. What may be the most appropriate treatment for one woman may be distinctly contraindicated for another. The physical condition, age, duration and severity of symptoms and their etiologic factors, the social status and the marital position of each patient must all be carefully considered and such procedures recommended as will most safely, certainly and quickly return her to a condition of comfortable and permanent health.

In general, though not without a marked degree of elasticity, removal of the uterus is indicated for the following conditions:

1. Cancer of the fundus (operable), and in a few very early cases of cancer of the cervix, though usually with this condition equally good or better results are obtained by the use of radium.
2. Pelvic inflammatory conditions in which the uterus is so covered and involved by the inflammatory masses that it is more easily and safely removed than left, and especially when the fundus is, in addition, subinvoluted and the seat of a metritis.
3. Fibroid tumors:
   (a) Producing ill health or discomfort or interfering with occupation or activities.
   (b) More than 15 cm. in diameter, giving pain and producing symptoms of pressure, especially if these are multiple and when myomectomy is inadvisable.
   (c) Rapidly growing and suggesting cancer.
   (d) Associated with excessive bleeding, producing anemia, though usually relieved by roentgen or radium therapy.
   (e) Associated with repeated attacks of pelvic inflammation or adnexal disease that has resisted treatment.
4. When the ovaries are the seat of papillary cysts and in some instances of multilocular cysts, also with a widespread pelvic endometriosis.

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5. When the patient is beyond the child-bearing age, the uterus is large and heavy, subinvolution and excessive bleeding are present, and these conditions are associated with such other conditions as to make an abdominal operation conservatively advisable.

6. In prolapsus uteri, especially when the patient is past 40 and there are associated operable conditions.

7. Following cesarean section when the Porro operation is done as a prophylactic precaution.

8. For the purpose of sterilization, especially when combined with therapeutic abortion, after which future free menstruation is detrimental; as in tuberculosis.

The uterus may be excised by any one of three definite operative procedures, the nomenclature of which is commonly confused. As to which means is preferable, there exists at the present time the greatest divergence of opinion, even among those best qualified to speak. Abdominal panhysterectomy designates the removal of the entire uterus, cervix included, by the abdominal route. Abdominal supracervical hysterectomy designates the removal of the fundus of the uterus, or most of it, only the cervix proper, or at least a part of it, being left. Vaginal panhysterectomy refers to removing the entire uterus through the vagina, though occasionally only the fundus may be amputated through this channel, and if so, vaginal supracervical hysterectomy properly describes the operation.

At any of these three operations, part or all of the adnexa may be excised at the same time, and if they are, it should be specifically designated.

All three of these operations have their advocates and each operation has a distinct and most useful place in modern surgery. The type of operation proposed should always be that best fitted to the case and also to the operator. In the hands of a few expert operators, the operative procedure itself makes but little difference. Here especially should careful attention be given to the selection of the operation best fitted to assure the future welfare of the patient. The vaginal operation rarely competes with the abdominal, as the former is usually reserved for women past the menopause, who have a material degree of prolapse and in whom there are no other (or but minor) associated pathologic conditions.

Whether or not the cervix should be removed with the fundus furnishes the subject for a present widespread heated discussion. Much may be said with truth on both sides and we feel that the argument is best settled by the condition of the cervix itself. Certainly in the hands of the majority of operators, panhysterectomy is the more difficult and longer operation. Anything that prolongs the operative time increases the danger of shock and postoperative complications. Operative trauma and accidents are more common, immediate morbidity is greater. Arguments against this operation include shortening and dryness of the vaginal canal, loss of support for the vaginal vault; increased risk of infection, and a number of operative accidents, all of which, however, depend principally on the preoperative preparation of the patient and the operator's skill and experience with this type of operation.

Great pressure is brought to bear in favor of panhysterectomy in that it removes the danger of subsequent development of cancer in the cervical stump. Graves found five cases of cancer developing in the cervical stump after 1,399 supravaginal amputations of the fundus. Essen-Moller states that he has never seen such a case. Hochman found only three such cases after 1,114 operations at the Woman's Hospital in New York, and Tarnier saw no cases after 1,164 operations. Gagey found 25 cases after 729, and Roque 11 after 379 operations. Masson reports 29 cases of carcinoma in the cervical stump seen at the Mayo Clinic in the previous five years, 21 of which occurred at least three years after operation, but there is no telling from how many subtotal hysterectomies these cases followed. Pemberton and Smith found that only 5 out of 3,814 patients who had had a trachelorrhaphy subsequently developed carcinoma. Among 1,408 women whose cervices were cauterized and 740 who had their cervix amputated, none had developed cervical carcinoma. Only 12 out of 669 patients with carcinoma of the cervix had had a trachelorrhaphy, cauterization or amputation.

Clark found carcinoma of the uterus in less than 1 per cent of fibroids and sarcoma in less than 0.25 per cent. Kelly and Cullen found carcinoma of the fundus in 1.7 per cent of their myoma cases. Graves reports myoma and carcinoma associated in 2 per cent, and Essen-Moller, in 29 cases after 1,000 laparotomies for fibroids, found 18 sarcomas (question of diagnosis), 5 carcinomas of the fundus and 2 of the cervix.

The majority of these unfortunate complications occur strikingly soon after operation, which strongly suggests the presence of the lesion at the time of operation. Before operation, careful inspection of every cervix, and biopsy and diagnostic curettage when indicated, will eliminate such diagnostic mistakes. As urged by Cullen for many years every amputated fundus should be opened and carefully examined immediately. When any indication of cancer is present the cervix is also removed. Although it is true that malignant conditions may develop later in the cervical stump, the risk is certainly no greater, than such disease occurring in the cervix of any woman, if as great. The probability of such occurrence is not to be compared with the added danger and risk of the more severe operation; so that, in our opinion, the cervix, unless the seat of an intractable resistant chronic infection, or suggestive of cancer, should be treated conservatively and not removed at operation. Trachelorrhaphy, cauterization, or even low amputation when indicated, will nearly always leave the cervix in a satisfactory condition. It is true that in a few cases a troublesome leukorrhea may persist, but this will almost invariably yield to cautery treatment.

When doing a supracervical hysterectomy, unless the patient has practically reached the menopause, it is our policy, if possible, to leave a very small portion of the lower fundus in order to preserve at least some slight semblance of menstruation, for which the majority of patients seem appreciative. It is our observation that, if this is done, any symptoms of the menopause are greatly reduced in severity.

We urgently advocate leaving normal tubes and ovaries when the uterus is removed, either partially or completely, and feel that menopausal disturbances are deferred and lessened by so doing. Cystic degeneration of the ovaries or other subsequent complications have not seemed to be increased by such conservatism.

TABULATION OF STATISTICS

With these few generalized remarks we will present a fairly comprehensive statistical study of 1,851 consecutive hysterectomies done by our associates and ourselves at the Lakeside Hospital during the past thirteen years. We believe that the results of this analysis may be most concisely presented in a series of tables, with brief comments on the essential features as shown in each table.

In table 1 it will be noted that the 1,851 hysterectomies were so divided that 58 per cent were abdominal panhysterectomies; 33 per cent were supravaginal amputations; and 9 per cent were vaginal operations. Though 30 per cent of all patients operated on were Negroes, 86 per cent of the abdominal panhysterectomies were done on white women; slightly more than half of the supracervical operations were on Negro women and almost a negligible percentage of the vaginal hysterectomies were on the Negro race. These figures are partly explained by the fact that fibroids and pelvic inflammatory conditions are more prevalent in the Negro race, and also by the fact that the majority of these patients were operated on by the resident staff, who, considering the cause for operation, more often chose the simpler procedure. Half of these patients were nulliparas, as compared with only 20 per cent nulliparas who had panhysterectomy. These figures would indicate that marked prolapse was quite a rarity in the Negro race, and certainly suggest that the Negro woman's uterine supporting structures were less affected by the trials of labor.

Table 1.—*Distribution of Cases*

Number	1,078		609		164	
	Pan-hysterectomy		Supravaginal Amputation		Vaginal Hysterectomy	
Per cent of total	58.2		32.9		8.8	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Race						
White	933	86.5	295	48.5	161	98.1
Negro	145	13.5	314	51.5	3	1.9
Parity						
0	224	20.7	301	49.9	4	2.4
1+	850	79.3	308	50.1	160	97.6

We particularly note that 20 per cent of the panhysterectomies were in nulliparas, and we ask ourselves the question whether in some of these patients a less extensive operation might not have given just as satisfactory results.

Table 2.—*Ages*

	1,078 Pan-hysterectomy		609 Supravaginal Amputation		164 Vaginal Hysterectomy	
Age	Number	Per Cent	Number	Per Cent	Number	Per Cent
10-19 years	2	0.09	1	0.16	0	0
20-29 years	114	10.5	127	20.8	3	1.8
30-39 years	479	44.4	313	51.5	34	20.7
40-49 years	390	36.1	142	23.2	47	78.6
50-59 years	75	6.9	24	3.9	52	31.7
60-69 years	15	1.3	2	0.32	26	15.8
69+ years	3	2.7	0	0	2	1.2
Average age	39.3		35.7		47.5	

A study of the age incidence of these operations, as given in table 2, shows that the maximum number of panhysterectomies and supracervical operations were performed on women between 30 and 39 years of age, 44 and 51 per cent, respectively. As would be expected, the age in the vaginal cases was greater, the maximum number of patients being between 50 and 59 years. The average age of the panhysterectomy patients was 39.3 years; of the supravaginal amputation patients, 35.7 years; and of the patients in the vaginal cases were about 10 years older, 47.5 years.

The five most common symptoms complained of by all these patients are given in table 3. The frequency of the several complaints is quite parallel in the panhysterectomy and supravaginal operations, except that tumor was a complaint in only 14 per cent of the former as compared to 23 per cent of the latter cases and is accounted for by the increased frequency of fibroids. Any evidence of prolapse on the part of the patient was tabulated as tumor, and the prevalence of this is shown by the fact that it was present in 63 per cent of the vaginal cases.

Table 3.—*Five Most Common Symptoms*

	1,078 Pan-hysterectomy		609 Supravaginal Amputation		164 Vaginal Hysterectomy	
Symptoms	Number	Per Cent	Number	Per Cent	Number	Per Cent
[illegible]	757	70.2	413	67.8	69	42.0
[illegible]	406	37.6	204	33.4	32	19.5
Tumor	159	14.7	144	23.6	103	62.8
Leukorrhea	202	18.7	72	11.8	26	15.8
Urinary disturbance	126	11.6	63	10.3	35	21.3

Table 4.—*Association of Perineal Work with Hysterectomy*

	1,078 Pan-hysterectomy		609 Supravaginal Amputation		164 Vaginal Hysterectomy	
Operation	Number	Per Cent	Number	Per Cent	Number	Per Cent
Laparotomy only						
Simple	202	18.7	269	44.1		
Complicated	74	6.8	56	9.1		
Total	276	25.5	325	53.3		
Laparotomy and perineal						
Simple	633	58.7	217	35.6		
Complicated	169	15.6	67	11.0		
Total	802	74.3	284	46.7		
Vaginal hysterectomy						
Simple	...	...	...	....	2	1.2
Combined	...	....	...	....	131	79.8
Complicated	...	....	...	....	31	18.9

In table 4 it is noted whether, with the hysterectomy, perineal work was done at the same time. It will be seen that there was some perineal work in three-fourths of all the panhysterectomies and in not quite half of the supracervical operations. This indicates that most women who have had children needed some type of repair work, as these figures parallel parity in all types of hysterectomy.

Table 5.—*Previous Operations and Duration of Operation*

	1,078 Pan-hysterectomy		609 Supravaginal Amputation		164 Vaginal Hysterectomy	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Previous operations	176	17.2	69	11.3	13	7.9
Operative conditions						
Simple	113	10.4	84	13.7	4	2.4
Combined	595	55.1	371	60.9	123	75.0
Complicated	370	34.4	154	25.2	37	22.5
Duration of operation, minutes	102.6		105.7		97.3	

Laparotomy and perineal operations, and laparotomy only, are again subdivided as to whether they were simple or relatively complicated, and it will be seen that, when laparotomy alone was done, 18 per cent of the panhysterectomies were classified as simple as compared to 44 per cent in the supracervical amputations. When perineal work was also done, 59 per cent of the panhysterectomies and 35 per cent of the amputations were classified as simple. The complicated operations of both types, with and without perineal work, were approximately the same.

With practically every vaginal hysterectomy plastic repair work was done at the same time, and 19 per cent were classed as more than ordinarily difficult and extensive.

Table 5 shows that 17 per cent of the panhysterectomies, 11 per cent of the amputations, and 8 per cent of the vaginal hysterectomies were performed on patients who had been previously operated on. This indicates a somewhat more radical treatment for those patients who had not been relieved by their former operative procedures.

The tabulation of operative conditions indicated as simple refers to the presence of but a single pathologic change or anatomic defect; combined, when two changes of major importance were present; and complicated when there were more than two such changes. The percentages in each type of hysterectomy do not vary greatly, except that few of the cases treated by vaginal hysterectomy were classified as simple.

The average operative time is remarkably close in all of the three types of hysterectomy. This time is calculated from the induction of anesthesia until the postoperative dressings are completed. It is interesting to learn that there was an average increase of 12.3 minutes in the operative time in the last 800 supracervical operations. This is probably attributable to the fact that several resident surgeons were rather slow operators and showed a preference for the supracervical operation. The time for the other two types of operation remained identical with that for the first thousand cases.

The operative diagnosis, shown in table 6, gives the more common and important observations at operation. The comparative frequency of the several tabulated conditions shows the much greater frequency of lacerated perineums and cervices, subinvolution, prolapse, gallstones and all types of carcinoma and hernia in those patients on whom a panhysterectomy was performed. Myomas were classed as 1, 2 or 3, depending on their size, 1 when up to 5 cm. in diameter, 2 when 5 to 10 cm., and 3 when greater than 10 cm. in diameter. All types of such tumors were more common in supravaginal amputations, as were pelvic inflammatory conditions. The uniformity of perineal lacerations and prolapse, which includes cystocele, in the vaginal hysterectomies is striking.

Table 7 gives operative procedures and shows that coincident with 1,087 panhysterectomies there were 3,147 additional operations; with 609 supracervical hysterectomies 2,197, and in 164 vaginal operations 296 additional operative procedures. In a very large proportion of both these main operations the appendix was removed and one or both tubes were resected. One or both ovaries were removed in almost half the cases, usually only one, as our policy is conservatism in this respect.

As a rule we examined the gallbladder and found that this organ was diseased in 6 per cent of all panhysterectomies and in about 3 per cent of all supracervical cases. Stones were the cause of this trouble in about 85 per cent of such cases. Cholecystectomy and cholecystostomy were used with equal frequency to care for the gallbladder disease, which was but rarely attempted at the time of supracervical hysterectomy but frequently with the panhysterectomy. Five vesicovaginal fistulas were repaired at the time of pan-

Table 6.—*Diagnosis at Operation*

Operative Diagnosis		Relaxed Perineum	Lacerated Cervix	Pelvic Inflammation	Myoma Uteri			Ovary Cysts			Subinvolution Uterus	Prolapse Uterus	Gallstones	Appendicitis	Hemorrhoids	Cancer		Hernia				Pregnancy	Uterine Polyp	Cholecystitis	Bartholin Gland	Ectopic Pregnancy	Vesicovaginal Fistula	Diabetes
					One	Two	Three	Papillary	Benign	Dermoid						Cervix	Fundus	Ventral	Inguinal	Postoperative	Femoral							
Panhysterectomy......	1,078	628	422	281	169	246	66	12	114	6	87	70	60	49	56	22	25	26	10	6	5	26	28	8	10	7	6	6
Supravaginal amp.....	609	103	38	278	136	258	105	9	86	6	16	10	13	39	9	1	2	8	1	0	0	18	4	3	4	2	0	1
Vaginal hysterectomy.	164	148	48	7	17	6	..	..	4	..	4	149	5	..	15	2	1	3	3	..	..	1	..	..	..	..	..	2

Table 7.—*Operative Procedures*

Operations	Panhysterectomy	Supravaginal Amputation	Vaginal Hysterectomy	Appendectomy	Salpingectomy	Perineorrhaphy	Oophorectomy	Dilation and Curettage	Anterior Colporrhaphy	Hemorrhoidectomy	Hernia				Cholecystectomy	Cholecystostomy	Cautery Cervix	Bartholin Gland	Repair Vesicovaginal Fistula	Intestinal Resection	Repair			Cesarean Section	Trachelorrhaphy	Amputation of Cervix
											Ventral	Inguinal	Femoral	Postoperative							Bowel	Bladder	Ureter			
Panhysterectomy................	1,078	..	..	830	708	626	497	198	139	51	22	9	5	5	19	18	16	8	5	2	7	8	2	2	0	0
Supravaginal amputation.......	..	609	..	422	444	110	348	194	12	9	6	1	0	0	1	1	7	4	0	2	6	6	0	1	17	6
Vaginal hysterectomy..........	..	..	164	7	14	156	14	11	65	19	3	3	..	..	3	..	..	..	..	..	1	..	..	..	..	..

hysterectomy, the latter operation sometimes being used to facilitate repair of the fistula.

The more important operative complications run a close parallel in all types of hysterectomy and are clearly set forth in table 8.

The postoperative complications, shown in table 9, are practically 1 per cent higher in the panhysterectomies, namely, 2.8 per cent. The important finding of eighteen fistulas, the result of the operation in the pan type of hysterectomy, as compared to no such deplorable consequences after the supracervical type, is a warning to use the utmost care at operation to prevent such sequelae and is quite sufficient of weighty preoperative consideration. It is to be said that three of these fistulas followed extensive operations for cancer and three others followed operations done for pelvic endometriosis. Proportionately, postoperative hemorrhage is also much more common after the panhysterectomies; this is not surprising, considering the difference in the procedures, but it urges for extreme care in the matter of hemostasis. None of the hemorrhage cases were fatal; none required secondary abdominal operation. Cystitis is also twice as common after the panhysterectomy. This can readily be understood and is attributable to the greater trauma of the vesicle.

The morbidity table (10) presents some interesting information. It will be seen that 29 per cent of the panhysterectomy patients had an absolutely afebrile convalescence as compared to 26 per cent and 21 per cent of the supracervical and vaginal cases, respectively; but 3 per cent more of the supracervical patients had an elevation for one day, which was so transient that we feel it can be ignored. Therefore, 43 per cent of the panhysterectomy, 43 per cent of the supracervical, and 32 per cent of the vaginal hysterectomy patients had afebrile convalescences.

Table 8.—*Operative Complications*

Operative Complications	1,078 Pan-hysterectomy	609 Supravaginal Amputation	164 Vaginal Hysterectomy
Shock	41	23	3
Cut ureter	3	0	0
Torn bowel	4	3	1
Torn bladder	4	1	1
Hemorrhage	7	3	3
Heart	1	7	0
Total	60 or 5.5%	37 or 6.0%	8 or 4.2%

Table 9.—*Postoperative Complications*

	Infected Incision	Peritonitis	Phlebitis	Embolism	Heart	Vesicovaginal Fistula	Ureterovaginal Fistula	Vesicorectal Fistula	Rectovaginal Fistula	Pneumonia	Pyelitis	Cystitis	Hernia	Postoperative Hemorrhage	Intestinal Obstruction	Psychiatric	Per Cent
Panhysterectomy	118	27	21	8	13	11	2	2	3	18	15	31	9	18	6	4	2.8
Supravaginal amputation	56	17	8	8	2	0	0	0	0	12	6	8	2	2	2	4	2.0
Vaginal hysterectomy	5	2	4	3	1	2	0	0	1	2	2	12	0	0	0	1	2.1

The postoperation days in the hospital show a two-day advantage for the supracervical patients that are of the same age; the vaginal cases average slightly longer, but this might be expected, in view of the greater age of the patients

The final table, on mortality, table 11, shows that the visiting staff of five operators performed 63 per cent of the panhysterectomies with a mortality of 3.5 per cent; the resident staff of twenty operators, 37 per cent of the cases with a mortality of 5.2 per cent. The visiting staff did only 39 per cent of the supracervical operations with a 5 per cent mortality; the residents did 61 per cent with 4 per cent mortality. Of the vaginal cases, the visiting staff did 80 per cent of the cases, with 3.8 per cent mortality; the residents did 20 per cent with 2.9 per cent mortality. The gross mortality for 1,078 panhysterectomies was 4.1 per cent; for 609 supracervical hysterectomies, 4.4 per cent, and for 164 vaginal hysterectomies, 3.6 per cent.

Table 10.—*Morbidity*

Relation of Temperature to 101 F. (38.5 C.)	1,078 Pan-hysterectomy Number	Per Cent	609 Supravaginal Amputation Number	Per Cent	164 Vaginal Hysterectomy Number	Per Cent
Below	316	29.3	159	26.1	35	21.3
Above (1 day only)	153	14.1	107	17.5	18	10.9
Above (more than 1 day)	609	56.5	343	56.3	111	67.6
Average days in hospital	18.5		16.6		19.7	

Table 11.—*Mortality*

		1,078 Pan-hysterectomy Number	Per Cent	609 Supravaginal Amputation Number	Per Cent	164 Vaginal Hysterectomy Number	Per Cent
Operator:	(5) Visiting	678	62.9	236	38.7	130	79.2
	(20) Residents	400	37.1	373	61.3	34	20.8
Mortality:	(5) Visiting	678-24	3.5	263-12	5.0	130-5	2.8
	(20) Residents	400-21	5.2	373-15	4.0	34-1	2.9
Gross mortality		4.1%		4.4%		3.6%	

COMMENT

Personal impressions and opinions gained from the study of these figures and constant association with the service would provide the following comments. The visiting staff, with their greater experience and the character of many of their cases, more often resort to panhysterectomy, employing supracervical amputation usually in only the more serious operative risks. The resident staff with their many pelvic inflammatory and fibroid cases, half of which are in nulliparas, more frequently utilize the supracervical operation. Their average case is a better risk than such operations of the visiting staff, which accounts for the slightly lower mortality in this group. It is a safe prediction that if the members of the resident staff resorted to panhysterectomy as frequently as do the visiting staff, their mortality would be still further increased.

CONCLUSION

The excellent primary and late results with vaginal hysterectomy, used chiefly in cases of marked prolapse, frequently in quite elderly women, are most satisfactory and unquestionably designates this as the preferable operative procedure in such selected cases.

COMMON DUCT STONES [*]

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In the Lahey Clinic during the years 1910 to 1926 inclusive, 619 patients with disease of the biliary tract were operated on. In the 619 cases, exploration of the common duct was undertaken 96 times (15.5 per cent), and 52 patients (8.4 per cent) were found to have stones. In the years 1927 to 1929 inclusive, however, with increased interest in common duct stones we increased markedly the percentage of explorations of the common duct. There were in these three years 413 cases in which operations were performed for disease of the biliary tract; 140, or 33.8 per cent, of these patients had explorations of the common duct; 74 of the patients, or 17.9 per cent, were found to have stones in the common duct. These figures indicate that as the percentage of exploration of the common duct rose from 15.5 per cent to 33.8 per cent the percentage of incidence of common duct stones increased from 8.4 per cent to 17.9 per cent. As we have doubled the frequency of exploring the common duct, the incidence for common duct stones has doubled.

It is probable that most common duct stones arise in the gallbladder or the cystic duct and pass from there into the common duct. It is generally accepted that a stasis of bile with or without infection is necessary for the formation of gallstones. This may come either from obstruction of the duct or from infection of the gallbladder wall and a resulting loss of function of the gallbladder. Stones may arise primarily in the bile ducts, although this is of such rare occurrence that only a few cases have been reported in the literature. Judd and Burden [1] report one such possible case and cite other cases reported by Lewisohn, Murchison and others. Even in the few cases that have been reported, there is often a certain doubt as to the primary origin of the stones in the hepatic ducts. Certainly for all practical purposes it may be said that common duct stones originate in the gallbladder or the cystic duct in the vast majority of cases. If the common duct is dilated it is probable that the stones have arisen from an impaction of some little duration in the cystic duct which occluded it before the stone reached the common duct, or they have been present in the common duct for a longer period of time. It is, of course, true that bilirubin calcium stones may form as a soft paste in the common duct in the presence of detritus and infection, but this method of origin of common duct stones is unusual.

It is generally conceded that a true recurrence of stones in the common duct is extremely rare. The case, however, with which stones can be overlooked and left in the common duct after operation is well recognized by all surgeons. In 1923, Dr. W. J. Mayo [2] stated that nearly one third of the autopsies performed on patients dying after the removal of the common duct stones in the Mayo Clinic showed that there were some stones left behind in the common duct. Dr. Edward L. Young,[3] in studying the fatal cases at the Massachusetts General Hospital after operations on the gallbladder, found that stones were still present in the common duct at autopsy in 61.3 per cent. He stated that in many of these cases there was sufficient cause for not searching for the stones and the real proportion of failure to remove stones after operation on the bile duct was 16.4 per cent. In my own experience I know that I have left stones behind in the common duct in spite of a most painful and diligent search for them. In three of the seventy-four cases in the present series, previous exploration of the common duct had been undertaken in our clinic and in each case I believe that a stone was overlooked at the primary operation.

Seventeen previous operations on the biliary tract were performed in this group of patients before the operation for common duct stones. These consisted of cholecystostomy in seven cases, cholecystectomy in six, drainage of acute pancreatitis in two, drainage of subphrenic abscess in one case and exploration of the pancreas for probable cancer in one. It is probable that in some of these primary operations stones were already present in the common duct and were overlooked.

Patients with stones in the common duct generally have a history of long years of indigestion and epigastric distress. In addition there are occasional attacks of mild pain, more severe than the distress and indigestion that are the usual complaints. I have felt that this dyspepsia and distress had generally been related to the presence of infection and of stones in the gallbladder. When the stones occlude the cystic duct or reach the common duct, the patient is seized with a pain of a different and more serious type. The attacks are frequently of intense severity requiring repeated doses of morphine for their relief. The pain has a tendency to stop as suddenly as it began and not infrequently after its disappearance it leaves no residual tenderness in the upper part of the abdomen. In the typical case, jaundice appears soon after the pain. It may be visible for only a short time or it may last for several days before disappearing. Occasionally the jaundice is intense and persists for weeks or even months. The degree of jaundice varies markedly in different patients and in different attacks. If it can be said that any type of jaundice is typical of common duct stones, it would seem that jaundice which appears suddenly following severe abdominal pain and disappears equally rapidly could be termed common duct stone jaundice. Examination of the stools during the period of the attack of pain and shortly after will not infrequently show one or more stools that are clay colored while all other stools are of the normal brown or yellow color. Likewise, an examination of the bilirubin contents of the blood before, during and immediately after an attack of pain will show a definite elevation of the bilirubin for a few hours following the pain, even in the absence of any visible jaundice.

So commonly has jaundice been associated with common duct stones that it was often believed that in the absence of jaundice no stones would be present in the common duct. Thus, Mayo Robson [4] stated that stones occurring in the common duct without jaundice were seen in less than 1 per cent of cases. Jordan and Weir [5] found that 13.2 per cent of their cases of common duct stones had no history of jaundice and no jaundice at the time of operation. Haggard,[6] in reporting his cases of common duct stones, states that 90 per cent showed jaundice at some time in their attacks. In the present group of seventy-four cases of common duct stones, however, there were twenty-nine patients, or 39 per cent, who gave no history of jaundice in their previous attacks of pain and who were not jaundiced at the time of operation. It is furthermore significant that of the 140 patients in whom the common duct was explored at the time of their gallbladder operations there were 72 who had had attacks of pain and jaundice in the past, and yet in one third of these no stones were *found in the common duct. From these facts it is* apparent, first, that as explorations of the common duct increase more and more patients with common duct, stones will be found who have never been jaundiced and, secondly, that patients will repeatedly be found who have been jaundiced and have had attacks of pain who have no common duct stones.

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[*] From the Lahey Clinic.

[*] Read before the Section on Gastro-Enterology and Proctology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Judd, E. S., and Burden, V. G.: Intrahepatic Cholelithiasis, Surg. Gynec. Obst. **42:** 322 (March) 1926.

2. Mayo, W. J.: Surgery of the Hepatic and Common Bile Ducts, Lancet **1:** 1299 (June 23) 1923.

3. Young, E. L.: Possibilities of Failure of Removal of Common Duct Stones, New England J. Med. **200:** 1145-1147 (May 30) 1929

4. Robson, Mayo, cited by Jordan and Weir (footnote 5).

5. Jordan, F. M., and Weir, J. F.: Stones in the Common Duct Without Jaundice, Proc. Staff Meet. Mayo Clin. **5:** 56 (Feb. 26) 1930.

6. Haggard, W. D.: The Diagnosis and Management of Stones in the Common Duct, J. A. M. A. **81:** 709 (Sept. 1) 1923.

Chills and fever without any appreciable cause on examination are present occasionally with common duct stones. In our experience, however, this has not been a common occurrence. Loss of weight in certain instances is one of the outstanding features of the disease. This is usually associated with a marked loss of appetite and in some cases has been so extreme as to be the leading symptom for which the patient sought relief.

On examination, tenderness in the right upper part of the abdomen is generally present after an acute attack of common duct colic. This is particularly true if the gallbladder is present. When, however, the gallbladder has been removed, common duct stone colic frequently is not followed by localized tenderness. An enlarged, tender liver edge may be present, especially when cholangeitis is present. In some instances pancreatitis occurs with the attacks and may be suspected clinically by the extension of the tenderness across the epigastrium into the left flank over the tail of the pancreas. Rarely, if ever, in our experience has the gallbladder been dilated and palpable when the obstruction to the common duct was due to stones. Such cases, however, have occasionally been reported.[5]

In patients who have had previous operations on the gallbladder, a return of the old attacks of severe pain after a relatively long period of apparent recovery following operation is most suggestive of a common duct stone remaining in the duct. In these patients indigestion and epigastric distress are less prominent than in patients who have not been previously operated on, and they show on examination relatively little local tenderness after the attacks.

The available diagnostic measures are inadequate in cases of common duct stones. Roentgen examination is usually not valuable, as common duct stones rarely can be diagnosed in this way. Bilirubin estimations immediately after and some little time after attacks of severe abdominal pain may be of particular diagnostic value since there is often a temporary rise in the bilirubin immediately after the pain, which is suggestive. Screening of the stools for the discovery of gallstones will occasionally show the presence of stones. Other than these there are no special measures particularly valuable in the diagnosis of common duct stones and one must rely particularly on the consideration of the clinical history and the conditions found on examination.

The decision as to the best time for surgical intervention in cases of gallstones with common duct obstruction is a most important one and one that frequently presents difficulty. Almost always it is safe to delay for a day or two after the onset of the severe pain. This will give an opportunity for careful study of the temperature, the white blood cell count, the bilirubin and the local condition in the upper part of the abdomen. It is undesirable to operate in the presence of an increasing and uncontrolled infection, as shown by a rising temperature, an increasing white blood cell count, an elevated bilirubin and the local signs of infection.

When bilirubin estimations show that the jaundice is increasing, it is unwise to operate. It is preferable to wait, if possible, until the jaundice is stationary or *decreasing before undertaking surgical intervention. In* the presence of chills, fever, pain and increasing jaundice that are indicative of cholangeitis, however, it is generally agreed that the common duct should be drained at once.

During the preoperative period much can be done to improve the patient's general condition and his ability to stand these serious operations. Fluids are forced by mouth, by rectum and by hypodermoclysis. Dextrose is given with these fluids, and also a diet high in carbohydrates. When jaundice is present, the bleeding and coagulation time are brought to normal limits by the intravenous injections of calcium or by the use of blood transfusions. Estimation of the sedimentation rate of the red blood cells and preparation for transfusion when a high sedimentation rate is present is recommended by Linton[7] in some recent studies of bleeding in jaundiced patients. If this simple test can give a true estimate of the tendency to bleed in jaundice, as seems to be the case from this report, it may well replace the unsatisfactory and unreliable tests of coagulation time.

We now explore many more common ducts at operation, 33.8 per cent, than has previously been our habit. The common duct that is dilated and thickened should be opened and explored in every patient, whether or not stones can be palpated and regardless of any history of jaundice. Exploration of the common duct is indicated in all patients who have had attacks of jaundice with pain whether or not the duct is enlarged. In all cases in which there is much thickening in the head of the pancreas it is preferable that the common duct be opened, irrigated and explored. In any case in which there is any question of common duct stone, irrigation is desirable and, if any detritus is obtained, thorough exploration can then be undertaken.

Certain complications may occur after operations on the common duct which are in some measure peculiar to the operation. Thus, in eight of our cases there were attacks of pain and jaundice coming on soon after operation. In two of these patients we have never been able to discover any cause and they have now gone for long periods with no further trouble. In three of the patients, however, the attacks of pain persisted and were followed by mild jaundice. In each of these patients the diagnosis of a recurrent stone in the common duct was made and in each a stone was removed by further operation. In one patient the postoperative pain and jaundice was found to be due to a stricture of the common duct. We are unable to explain the origin of this stricture which followed a simple cholecystectomy and drainage of the common duct. The stricture at the second operation was found fully an inch below the point of incision of the common duct for the T tube drain. A successful plastic operation was done in this patient at the second operation. In one patient in whom postoperative pain, fever and jaundice occurred we were able to make a diagnosis of syphilis of the liver. This case was most instructive to us and may well be briefly reported.

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[7] Linton, R. G.: The Sedimentation Rate of Blood in Jaundice, Ann. Surg. **91**: 694 (May) 1930.

A woman, aged 40, had attacks of typical gallstone colic associated with mild jaundice and followed by local tenderness in the right upper quadrant. Nothing could be felt in the abdomen because of her marked obesity. The Wassermann reaction was positive. The gallbladder failed to fill on repeated intravenous injections of gallbladder dye. A diagnosis of cholecystitis with stone and probable common duct obstruction was made and operation was undertaken. At operation a typical gummatous liver was discovered with a thick-walled indurated gallbladder containing no stones. The common duct was markedly dilated and thick-walled. It was opened and its mucous membrane was found to be edematous, raised and thickened so that it resembled granulation tissue. Thick, black bile was removed from it but no stones could be discovered. The common duct was drained and the abdomen closed in layers. The postoperative course was for a time satisfactory but, after eight days, daily fever with increasing jaundice occurred and marked pain was present in the upper part of the abdomen. Mild antisyphilitic treatment had been given soon after operation, but it was necessary to increase the treatment markedly before improvement occurred. With large amounts of mercury and potassium iodide the temperature finally came to normal and remained there, and the pain and jaundice disappeared.

The confusion of common duct stones and syphilis of the liver and the possible involvement of the bile duct by this infectious process was to us a unique experience and one which we feel may well bear consideration in order that it may be avoided by other surgeons. We now believe that in the presence of a positive Wassermann reaction antisyphilitic treatment with, of course, the most careful avoidance of arsphenamine, should be given every patient in whom gallstones are suspected but not proved, unless the patient's surgical condition is so serious that an emergency operation is obviously indicated.

Operations on Biliary Tract in 1927, 1928 and 1929

Operations	Number	Deaths	Operative Mortality, Per Cent
Common duct stones present	74	5	6.7
Common duct stones not present.	339	10	2.9
Total biliary tract operations....	413	15	3.7

It is generally recognized that the presence of stones in the common duct increases materially the seriousness of gallstone disease. That this is true is readily shown by the marked increase in the operative mortality in cases of common duct stone over those in which there are no calculi in the biliary ducts. Thus, as is shown in the accompanying table, there were five deaths in the seventy-four cases of common duct stone, an operative mortality of 6.7 per cent. In 339 patients in whom there were no common duct stones there were 10 deaths, an operative mortality of 2.9 per cent, and it is to be noted that in these 339 patients the common duct was carefully explored 66 times with no mortality.

In reviewing the five deaths that we have had in these seventy-four cases we are impressed by one or two outstanding facts. In each of the five patients, numerous stones were present in the gallbladder as well as in the common duct and each of the patients had had repeated attacks of disease of the biliary tract over several years. Each of the five patients was either jaundiced at the time of operation or had been jaundiced repeatedly in the past. The dangerous time in the postoperative course of each patient was from seven days onward, one patient, aged 77, dying seven days postoperatively and the others dying nine, ten, ten and twenty-one days postoperatively. In each of the five fatal cases, we removed the gallbladder, removed stones from the common duct and drained the common duct. The causes of death were liver and kidney failure, hemorrhage, pancreatitis and retroperitoneal phlegmon.

The fact that stones had been present in the gallbladder and probably in the common duct in all these patients for several years before they came to operation cannot be overlooked, particularly when one considers the number of patients who are told that as long as their gallstones are causing them no symptoms they need not have anything done about them. Silent gallstones, are, however, potentially dangerous and when the patient's condition permits should be removed as soon as they are diagnosed. These fatalities represent the results of watching gallstones until they caused sufficient symptoms to demand active surgical treatment. The most serious difficulties in our experience with the common duct have arisen from the seventh to the fifteenth day after operation and have been related to delayed hemorrhage and the late depression of liver and kidney function that occurred. In certain cases of long standing biliary obstruction with jaundice we have had fatal bleeding which has persisted in spite of repeated blood transfusions, calcium administration and the giving of bile by mouth.

The combination of cholecystectomy with removal of stones and drainage of the common duct is too extensive a procedure for seriously handicapped patients. A division of the operation into two stages has been urged in the past by numerous authors but has not had general acceptance. When it is considered, however, that hemorrhage plays a large part in the deaths in common duct surgery and that liver damage and liver failure are always present in these fatalities, it must at once be obvious that reduction of the trauma to the liver substance, diminution by some few minutes of the operating time and avoidance of the added shock and the added bleeding from removal of the gallbladder can be advantageous only in patients who are poor risks. We have recently operated on several patients for obstruction of the common duct without removing the gallbladder. The patients have done well and we are convinced that a conservative procedure of this type will frequently be life-saving in final results.

The reduction of mortality from common duct stones can be accomplished, first, by the early removal of gallstones in every patient in whom they can be diagnosed; certainly, any patient known to have gallstones who has an attack of colic with jaundice should lose no time in having the necessary operation performed; secondly, by the greatest care and attention to details of preoperative preparation with fluid, dextrose, calcium and transfusion and to similar measures postoperatively; and, finally, by the division of the operation into two parts in long standing biliary obstruction, a factor of great importance in lowering the high mortality. The removal of common duct stones with or without removal of stones from the gallbladder as a first stage and cholecystectomy at a later date must often become the procedure of choice in poor risk patients having common duct obstruction from stones.

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ABSTRACT OF DISCUSSION

Dr. Bruce C. Lockwood, Detroit: Good results from gallbladder surgery, according to most statistical studies, are obtained in from 70 to 75 per cent of cases. The point to which Dr. Clute calls attention especially is that stones are often missed by the surgeon when they are lodged in the common duct, and that a more thorough search should always be made at the time of operation. I think he will agree that it is often difficult to find them, and, when found or suspected, they are hard to remove. I refer especially to those stones which slip up the hepatic duct toward the liver, and those which become caught or embedded in or near the ampulla of Vater. I have in mind several cases in which the surgeon failed to find such stones which were subsequently shown to be present, and also several patients in whom the stone was found embedded in the ampulla region, but the operation of removal proved so formidable that the patients died after operation. Other causes of poor operative results are adhesions between the duodenum and the operation site, stricture of the common duct, pancreatitis, hepatitis, including syphilis, and other medical conditions. Medical treatment of these biliary tract cases should always be carried on postoperatively, and when patients cannot be or refuse to be operated on. Such treatment is based on known physiologic facts, involving procedures that keep the bile thin and of low viscosity, increase its flow from the liver and its frequent periodic dumping from the gallbladder, lessen its content of cholesterol and increase its content of bile salts, thereby keeping cholesterol in solution. Such medical treatment should also include removal of focal infections, correction of metabolic abnormalities, and the correction of any stomach or intestinal conditions that are found in the individual case. Time does not permit a discussion of the details of medical treatment. I am convinced that the results obtained warrant greater consideration than usually given to the medical management of diseases of the biliary tract, and that such should be used in conjunction with surgery for best results.

Dr. Frederick A. Coller, Ann Arbor, Mich.: One of the outstanding features of the diagnosis of abdominal diseases in the past few years has been the increasing frequency with which diseases of the gallbladder have been recognized. Two facts brought out were amazing to me: First, the large number of cases in which stones were present in the common duct entirely unsuspected. It was thought that the classic picture of common duct stone was a fairly accurate one, but obviously it is not so. Second, the comparatively large number of cases with painless jaundice in which the jaundice is due to stone in the common duct. This seems to me to make it worth while to emphasize the point that the group of patients with painless obstructive jaundice who have been considered as entirely hopeless can be relieved. I believe that exploration should be done in all of them. Stones in the common duct may cause this type of jaundice and they can be removed. Secondly, I think it wise to emphasize the beneficent results one can obtain, even in cases of carcinoma of the head of the pancreas, by anastomosis of the gallbladder and some portion of the gastro-intestinal tract. I do not know of any palliative operation for cancer that gives greater benefit to the patient. I have several patients now who are alive two years and a half after this procedure. I believe that because of these two possibilities all patients presenting conditions of this type should be operated on. Dr. Clute also mentioned that hemorrhage is the bugbear of the surgeon operating in cases of this type. There is no way of foretelling whether or not bleeding would occur in any given case. There is no direct ratio between the chance of hemorrhage and the length of time of jaundice. The bleeding time and the clotting time are not accurate indexes. Sometimes they indicate that hemorrhage is to be expected and it does not occur; again they are perfectly normal and postoperative hemorrhage occurs. Since Linton's paper in March I have been using the sedimentation test on this group of cases. Of about fifteen patients of this type with obstructive jaundice, in five the test was positive; that is, the sedimentation rate was very rapid, running from between 40 and 50 mm. in thirty minutes. In all of these positive cases postoperative hemorrhage occurred. One of the patients died.

Dr. Howard M. Clute, Boston: I, as a surgeon, am particularly impressed with the paper presented by Dr. Bockus and his co-workers because it seems to me that surgeons need added help which this method offers. I have not used it. Certainly it should be used for the cases of upper abdominal distress and pain which at present are not understood and which in many instances in the last analysis come to surgical exploration. Anything that will increase knowledge and reduce the number of exploratory laparotomies should be used. The mortality in gallstone cases increases as the disease is prolonged and as stones enter the common duct, and if I may do anything with this common duct stone study, it is to emphasize the following: Yesterday in the Section on Surgery, Judd and Marshall discussed 160 cases of common duct stone. They reported that 20 per cent or more did not show jaundice before operation or at any time in their past history. They also reported a mortality of 6.8 per cent, which is the same mortality that I report in this group. Ordinary mortality in gallstone disease when the gallstones are limited to the gallbladder, is from 1 to 3 per cent over several years, and the fact that it is more than doubled when the stones are in the common duct, is most significant. I would urge finally that innocuous, harmless gallstones, from the surgeon's point of view certainly—and I believe that point of view should be held by all of us—do not exist, and I believe that if these crystals are found and can be interpreted as pointing to gallstones, or if, by any method, one can discover gallstones, the time for medical treatment as such has ceased and, the patient's condition permitting, the moment for surgical intervention has arrived.

FAMILIAL NEUROSYPHILIS [*]

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The idea that persons with active syphilis do not rear large families must be abandoned. In the old days, before the more complete diagnostic methods were in use, familial and especial familial neurosyphilis was often overlooked. It is true that the families who had the somatic type of syphilis were usually small, but those who had the neuro type were often large.

NEUROSYPHILIS IN INFANTS

Fifty-eight per cent of syphilitic infants have some involvement of the central nervous system, but the greater percentage of those so affected have the pure meningeal type. This finding suggests that the brain and spinal cord are not particularly selected by *Spirochaeta pallida* for especial attention but that the condition is a manifestation of general infection in the same manner in which the liver, spleen, bone and joints are involved.

NEUROSYPHILIS IN CHILDREN

In older children, the proportion of neurosyphilitic involvement, even without treatment, drops to about 25 per cent. One must assume that, in spite of the number of infants who died before the family was examined, the neurosyphilitic involvement of many of these children has retrograded without treatment until the spinal fluid is absolutely negative for all syphilitic tests, whereas, had these children been examined during infancy, one would have found the percentage of neuro-involvement much higher.

Positive results of tests of the spinal fluid of children which have persisted through infancy into childhood

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[*] Material from the Children's Mercy Hospital, Kansas City, Mo.

[*] Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

Table 1.—*Father with Dementia Paralytica*

Family	Signs	Blood Wassermann Reaction	Spinal Fluid Wassermann	Cell Count	Globulin	Gold Test	Courses of Treatment	Duration of Treatment, Weeks	Result	Intelligence Quotient Test	Diagnosis	Year Born
I. N. Family												
Father	Dementia paralytica	4+	4+	..	..	P	....	...	Died	..	Dementia paralytica	....
Mother	None	4+	—	—	—	—	....	...	....	..	Somatic syphilis	....
Violet	None	4+	—	10	—	—	5 courses	364	Wassermann negative	..	Somatic syphilis	1915
Doris	None	4+	—	5	—	—	5 courses	364	Wassermann negative	..	Somatic syphilis	1918
Frank	No signs	negative	—	5	—	—	None	156	Wassermann negative	..	No syphilis	1920
R. I. Family												
Father	Dementia paralytica	4+	4+	..	tr	..	....	. .	....	..	Dementia paralytica	....
Mother	....	...	...	..	..	..	....	...	....	..	....	....
G	No signs	negative	—	3	—	L	1 course	148	Good; Wassermann negative	81	No diagnosis	1917
D	No signs	...	—	2	—	—	....	60	Good; Wassermann negative	92	No diagnosis	1925
R	No signs	3+	—	—	—	—	2 courses	148	Good; Wassermann negative	83	No diagnosis	1921
F. E. Family												
Father	Dementia paralytica	4+	4+	..	—	—	. ...	...	Died	..	Dementia paralytica	....
Mother	None	—	...	..	..	..	....	...	....	..	No	....
1	None	—	—	—	—	—	None	None	Good; Wassermann negative	..	No	1918
2	None	—	—	—	—	—	None	None	Good; Wassermann negative	..	No	1924
B. R. Family												
Father	In state institution	. .	4+	..	..	..	....	...	....	..	Dementia paralytica	....
Mother	....		.	..	..	..	Treatment during pregnancy	...	....	..	....	....
Joe	Marked nasal spurs	—	—	5	—	—	1 course	16	....	..	....	1918
M. I. Family												
Father	Tabo paretic in state institution	—	...	..	..	..	. ...	...	....	..	....	....
Mother	....	—	...	..	..	..	....	...	....	..	....	....
Iva	None	—	—	2	—	—	1 course	32	Wassermann negative	..	Curvature of spine	1916
Velma	None	—	. .	..	..	..	....	...	Died in 1928	..	....	....

Table 2.—*Tabetic Parents*

Family	Signs	Blood Wassermann Reaction	Spinal Fluid Wassermann	Cell Count	Globulin	Gold Test	Courses of Treatment	Duration of Treatment, Weeks	Result	Intelligence Quotient Test	Diagnosis	Year Born
L. Family												
Father	No pupillary reflex loss of knee jerk	4+	...	..	..	..	... .	...	....	..	Tabes dorsalis	....
Mother	Unequal pupils exaggerated reflex	4+	...	..	..	..	....	...	....	..	Protabetic	....
D	None	4+ ...	— 4+	21 0	— —	L —	3 courses; malaria	68	Excellent; Wassermann reaction negative	79	Cerebrospinal syphilis	1916
L	Square head saddle nose slow pupils	4+ ...	4+ 4+	40 2	+ ±	L —	3 courses; malaria	68	Excellent; Wassermann reaction negative	79	Cerebrospinal syphilis	1919
E	AS L B 3610	4+ —	4+ —	11 —	— ±	— —	3 courses; malaria	68	Excellent; Wassermann reaction negative	86	Cerebrospinal syphilis	1921
B	AS L D3610	4+ —	AC —	56 4	2+ —	L —	3 courses; malaria	68	Excellent; Wassermann reaction negative	86	Cerebrospinal syphilis	1924
C	AS L D3610	4+ —	4+ —	14 —	— —	L —	3 courses; malaria	68	Excellent; Wassermann reaction negative	75	Cerebrospinal syphilis	1926
J	AS L D3610	4+ —	4+ —	.. —	.. —	L —	3 courses	72	Excellent; Wassermann reaction negative	101	Cerebrospinal syphilis	1928
T. Family												
Mother	Unequal pupils; loss knee jerk	4+	...	..	..	..	....	...	....	..	Tabetic; may be cong.	1908
R., age 3 months	Skin-bones Joints-viscera Central nervous system	4+ 4+ 4+	— — —	2 2 4	— — +	L .. —	2 courses	52	Doing well but liver and spleen palpable; Wassermann negative	..	Fulminating syphilis	1929
R. C.	Skin bones Joints-viscera Central nervous system	4+ 4+	4+ —	— 2	— +	.. —	2 courses	52	Wassermann negative	..	Fulminating syphilis	1929

must be regarded with more seriousness than the positive observations of infantile syphilis, for it means that a deeper and more widespread involvement has affected the brain and spinal cord and that it is not merely a meningeal involvement. It is from this type of child whose spinal fluid reaction is persistently positive that the great class of neurosyphilitic patients are drawn. Cases of dementia paralytica, tabes, optic atrophy or the paralyses of different types, and those presenting mental manifestations are classified as degenerative.

Table 3.—*No Evidence of Cerebrospinal Syphilis in Father or Mother*

Family	Signs	Blood Wassermann Reaction	Spinal Fluid Wassermann	Cell Count	Globulin	Gold Test	Courses of Treatment	Duration of Treatment, Weeks	Result	Intelligence Quotient Test	Diagnosis	Year Born
H. O. Family												
Father.........	... .	—	...	..	..	..	....	...	....	..	....	....
Mother...... ...	....	2+	...	..	..	..	....	...	....	..	....	....
L..............	....	2+	4+	4	tr	—	N. S. (7) 2.1	12	7	74	....	1913
W............ .	Nasal spurs	negative	—	6	tr	—	N. S. (8) 2.4	12	....	84	....	1914
M..............	....	—	—	0	tr	—	N. S. (8) 2.4	12	....	106	....	1923
D..............	Epitrochlear large inguinal glands	4+	—	1	tr	..	N. S. (8) —	12	... ...	93	....	1919
B. O. Family												
Father.........	None	2+	...	..	..	..	....	...	....	..	....	....
Mother.........	Unequal pupils; negative	...	..	..	..	..	....	...	....	..	? Brain syphilis	....
B..............	Spastic paraplegia	4+	—	14	4+	—	5 courses	109	Improvement	119	Spastic paraplegia	1919
	Bladder paralysis	...	—	24	4+	—	Malaria	...	Wassermann 4+	..	....	....
		...	...	0	2+	P	....	...	....	..	....	....
E..............	....	negative 4+	—	3	—	P	3 courses; malaria	92	Wassermann negative	103	C. N. S.	1916
A. B. Family												
Father.........	None	2+	—	..	..	..	....	...	....	..	....	....
Mother.........	None	negative	...	..	..	..	....	...	....	..	....	....
J.........	None	negative	—	2	tr	L	2 courses	50	Very sturdy; Wassermann reaction negative	66	....	1917
B..............	Nasal spurs	negative	—	3	tr	L	2 courses	44	Wassermann reaction negative	96	Latent	1923
B..............	None	4+	—	0	0	0	6 courses	304	Wassermann reaction negative	82	Latent	1920
K..............	None	4+	...	..	..	..	.. ..	...	Wassermann reaction negative	..	....	....
V..............	Interstitial keratitis	4+	—	2	0	0	11 courses	440	Wassermann reaction negative	82	Interstitial keratitis	1915
B............ .	None	4+	—	2	0	0	5 courses	312	Wassermann reaction negative	85	Latent	1913
Pete...........	Unequal pupils	negative	—	2	tr	L	None	...	....	..	....	....
M. A. Family												
Father.........	None	4+	...	..	..	..	....	...	....	..	....	....
Mother.........	None	4+	. .	..	..	..	....	...	....	..	....	....
W..............	Bones-nose	4+	—	5	—	—	8 courses	268	Wassermann reaction 1+	..	Osteomyelitis	1913
			—	15	+	L						
E..............	Bones tibia	4+	—	11	—	—	7 courses	68	Wassermann negative	..	Osteitis	1917
R. A...........	None	3+	—	6	—	—	2 courses	228	Wassermann reaction negative	..	Latent	1919
S. L. Family												
Father.........	Family deserted	4+	...	..	..	..	....	...	....	..	....	....
Mother.... . ..	No signs	4+	...	..	..	..	.. ..	...	....	..	....	....
H........... ..	Nasal spurs; unequal pupils	ac	—	4	+	—	1 course + three N. S.	64	Wassermann negative	66	....	1914
V..............	Nasal spurs; unequal pupils	4+	3+	6	+	P	2 courses	72	Wassermann reaction negative	91	Juvenile tabes	1916
F..............	Nasal spurs	ac	—	7	+	—	2 courses	72	Wassermann reaction negative	93	....	1922
H..............	Nasal spurs	negative	—	0	+	P	2 courses	72	Wassermann reaction negative	..	....	1927

The history of one family will show clearly how persistent positive reactions in the spinal fluid may endure through infancy and childhood and result in more serious involvement of the cerebrospinal system.

The father and mother while young were tabetic and all five of the children gave marked positive reactions in the blood and the cerebrospinal fluid, including the infant, who was brought to the clinic because of secondary skin manifestations. The mother stated that all the children except the eldest, who is now 11 years of age, had the same skin manifestations as the youngest soon after they were born. The physical aspect of all except the eldest was greatly modified by the disease.

The type of disease in the parents does not at all determine the type of disease in the child. A study of these families makes one feel that neurosyphilis is as often not transmitted as it is transmitted to the offspring. One often sees children whose mother or father has neurosyphilis and who are affected with interstitial keratitis and bone syphilis without any evidence of neuro-involvement; and, on the other hand, children are seen with bone syphilis and involvement of the central nervous system whose parents show no evidence of neurosyphilis. In the main, familial neurosyphilis can be roughly grouped into four classes.

THE CHILDREN OF A FATHER WITH DEMENTIA PARALYTICA

While the wife of a father with dementia paralytica may often be affected with syphilis, she rarely develops dementia paralytica herself and it is entirely possible for her to escape the disease altogether. The children of this father may not escape the somatic syphilis, but they invariably escape any neurosyphilitic involvement.

After studying these tables, one can at least state that many children escape central nervous system involvement, although the father was a patient proved to have dementia paralytica who died of his disease. This observation testifies that the organism of syphilis which finally produces dementia paralytica in the affected individual is an attenuated form of the spirochete which the somatic system is able to control and is often able to eliminate, but because of the low resistance of the brain and spinal cord these organisms slowly injure and finally kill the vital cells of this great system.

TABLE 4.—*No Evidence of Cerebrospinal Syphilis in Parents*

Family	Signs	Blood Wassermann Reaction	Spinal Fluid Wassermann	Cell Count	Globulin	Gold Test	Courses of Treatment	Duration of Treatment, Weeks	Result	Intelligence Quotient Test	Diagnosis	Year Born
						C. O. Family						
Father	None	4+	...	..	..	..	....	...	....	..	....	....
Mother	None	4+	...	..	..	..	....	...	....	..	....	....
Marc	Right side, spastic paralysis	negative	4 -	..	2+	.	3 courses	...	Died of hemorrhagic cerebritis	..	....	....
Mary	Saddle nose	4+	—	5	—	—	5 courses	204	Excellent; Wassermann negative	108	Latent	1919
Jo	Saddle nose	1+	—	6	—	—	5 courses	204	Excellent; Wassermann negative	103	Latent	1921
Jak	Saddle nose	2+	—	2	—	—	5 courses	209	Excellent; Wassermann negative	90	Latent	1923
Bi	Saddle nose	negative	—	2	—	—	5 courses	204	Excellent; Wassermann negative	119	No	1925
						S. N. Family						
Father	....	4+	...	..	..	..	....	...	....	..	....	....
Mother	No signs	4+	...	..	..	..	....	...	....	..	....	....
R	Unequal pupils; noisy; backward	... ... 4+	2+ 4+ Neg	15 76 8	+ tr qns.	Par Par Neg.	2 courses; malaria	103	No change; Wassermann reaction 4+	51	Taboparesis; rec. school; incorrigible	
D	None	—	—	7	—	—	1 course; malaria	90	Excellent; Wassermann negative	..	None	....
P	None	—	—	4	—	—	1 course; malaria	90	Excellent; Wassermann negative	..	None	....
G	None	—	—	9	—	—	1 course; malaria	90	Excellent; Wassermann negative	..	None	....

In this series the father with dementia paralytica did not often transmit this type of disease to his offspring, although he did transmit syphilis to them.

THE INFLUENCE OF INCOMPLETE, EARLY TREATMENT IN THE PRODUCTION OF DEMENTIA PARALYTICA IN CHILDREN

The use of an insufficient amount of treatment in syphilis in adults will sometimes precipitate a serious neuro-involvement.

When haphazard methods are used in infants, the same disastrous result often occurs. By insufficient treatment the spirochetes can be transmuted into the neurosyphilitic type, or they can be made arsenic-fast so that further treatment with the arsenicals after a period of time is not effective. At the present time I have several cases which belong to this group.

R. S., a boy, aged 10 years, is the oldest of five children. The father and mother are both syphilitic but have no evidence of neurosyphilis. As an infant he received a few doses of neoarsphenamine in the buttocks and no further treatment until two years ago, when he received a course of sulpharsphenamine. When seen in the clinic at the age of 9 years, he had a typical taboparesis with classic manifestations. The other four children showed no evidence of syphilis, except that they had a positive Wassermann reaction and had no treatment. Examinations were absolutely negative in the cerebrospinal fluid and there was no evidence whatever of neurosyphilis. Only this case will be cited because the others in all essential points are the same. Thus we are confronted with a paradox.

Parents with dementia paralytica nearly always beget children free from central nervous system involvement, while, in one case, syphilitic parents free from neurosyphilis have a child in their family who developed the most fatal of all neurosyphilitic involvement (dementia paralytica).

THE CHILDREN OF PARENTS WHO HAVE TABES DORSALIS

An entirely different picture is presented when the parents are tabetic. In this type the disease is nearly always transmitted to the children and nearly all of them show involvement of the central nervous system or they show no involvement at all. The oldest child seems to be as badly affected as the youngest. A study of the accompanying tables impresses one with the persistence with which neurosyphilis was transmitted to the children, one after another. It demonstrates the fact that one is dealing with a more virulent organism in this type than in dementia paralytica. The patient with dementia paralytica often dies from his disease; his famly does not develop it; on the other hand, the tabetic patient does not die from his disease but he often transmits neurosyphilis to his entire family.

A comparison of the cerebrospinal fluid before and after treatment in this family is interesting. It will be noted that not only all of the children receive the routine arsphenamine, but also all were successfully treated by malaria, and in less than one year's time the cerebrospinal fluid of all except one became entirely normal.

In the T. family not only did the infants show positive evidence of syphilis in their central nervous system, but they also had marked skin eruptions over the entire body and involvement of the bones and joints.

The mother contracted her syphilis at the age of 15 years and at the age of 22 well developed tabes dorsalis with Argyll Robertson pupils and loss of knee kicks. In the second group I have shown that the children of tabetic parents often inherit the disease in the form of neurosyphilis, which may later develop into true tabes.

CEREBROSPINAL SYPHILIS IN THE FATHER OR MOTHER, OR BOTH

In most of these families the father shows more evidence of cerebrospinal syphilis than the mother. The transmission of syphilis to the children occurs in a strange manner. Usually one child, and that the eldest, will develop tabes or dementia paralytica. The rest of the children will be free from the disease so far as neurosyphilis is concerned. O'Leary's experience is the same as mine, excepting that in his families the youngest child of the family more often bore the brunt of the disease. A study of the tables reveals the fact that while the oldest child has typical juvenile dementia paralytica, both from a physical standpoint and from the serologic aspect, none of the other children show signs of neurosyphilis either serologically or actually. It is hard to explain this strange happening. One might hazard a guess that the parents being young when they married and the disease being young in the father, the vigorous, natural immune forces of both parents largely overcame the disease in a short while, so that the brunt of this transmitted infection was borne by the eldest child. In O'Leary's cases the youngest child who

TABLE 5.—*Cerebrospinal Syphilis in Father or Mother or Both*

Family	Signs	Blood Wassermann Reaction	Spinal Fluid Wassermann	Cell Count	Globulin	Gold Test	Courses of Treatment	Duration of Treatment, Weeks	Result	Intelligence Quotient Test	Diagnosis	Year Born
						M. O. Family						
Father.........	Paralysis of eyelid	4+	...	..	..	..	... .	...	....	..	....	....
Mother.........	None	4+	...	..	..	..	....	...	....	..	....	....
J..............	Mental	4+	—	3	+	P	1 course	...	Dead	0	Taboparesis	1913
F....	None	1+	—	5	—	—	4 courses	124	Excellent; Wassermann reaction negative	92	Latent	1915
C..............	None	1+ —	—	7	—	—	4 courses	127	Wassermann reaction negative	94	Latent	1918
A..............	None	2+ —	—	1	—	—	4 courses	124	Excellent; Wassermann reaction negative	89	Latent	1921
V....	Nasal spurs	4+	—	1	—	—	3 courses	123	Excellent; Wassermann reaction negative	90	Latent	1924
I..............	....	—	—	—	—	—	Neo. 1.1	123	Wassermann reaction negative	..	....	1927
						D. I. Family						
Father.........	.. ..	...	...	..	..	..	....	...	....	..	....	....
Mother	.. . .	4+	...	..	..	..	....	...	....	..	....	....
J.......... .	....	...	2+	16	—	—	N. S. 5.75	48	Sent to Marshall, Mo.; Wassermann negative	..	Spastic paralysis	1925
L......	None	—	—	0	—	—	None	96	.. ..	..	....	1924
G......... .. .	Nasal spurs	—	—	1	—	—	None	..	.. . . . .	..	....	1920
M....	None	—	—	0	—	—	None	..	. . . .	..	. . . .	1928
W........	Nasal spurs	—	—	0	—	—	None	..	... .	..	....	1923
						J. O. Family						
Father.	Not seen	...	...	..	..	..	....	...	.. . .	..	....	....
Mother.... .	Deafness	—	...	..	..	..	....	...	....	..	Brain syphilis	....
L.....	Marked nasal spurs; unequal pupils	—	2+	5	+	L	3 courses	68	....	106	Brain syphilis	1919
L. B...	None	±	++	6	+	—	3 courses	68	....	94	Latent	1918
N....	Nasal spurs; partial deafness	—	—	9	+	—	3 courses	68	....	85	Brain syphilis	1922
V......	None	—	—	12	+	L	None	...	....	..	....	....
						A. R. Family						
Mother...... .	Marked regular nystagmus	4+	...	..	..	..	....	...	....	..	....	....
H........ . ..	Unequal pupils; nasal suprs; left epitrochlear	3+	—	11	..	L	3 courses	158	Wassermann reaction negative	77	Brain syphilis	1922
E......	None	4+	—	9	..	L	3 courses	156	Wassermann reaction negative	86	Cerebrospinal syphilis	1915
M.....	Unequal pupils; tongue fissures; epitrochlear on R. I.	4+ 4+	4+ 4+	.. 0	tr tr	L L	3 courses; malaria	158	Excellent; Wassermann reaction negative	77	Tongue	....
B..........	Interstitial keratitis; pegged teeth; nasal spurs	4+	—	..	—	—	3 courses	156	Wassermann reaction negative	87	Interstitial keratitis	1918
S..	Nasal spurs; epitrochlear on right	4+	—	1	tr	L	3 courses	156	Wassermann reaction negative	102	Latent	1926
B. J....	None	negative	—	4	tr	L	2 courses	103	Wassermann reaction negative	90	No diagnosis	1928

The course of treatment consisted of neoarsphenamine and ten intramuscular doses of mercury or bismuth.

was affected by neurosyphilis was the child of old age when the natural immune forces of the body were at a low ebb and the parental syphilis once more becomes vigorous, that affecting the youngest child.

My conclusion in this class of disease is that when the parents are affected with cerebrospinal syphilis, in many instances only one child is affected with neurosyphilis and that is usually the eldest, while the other children escape any evidence of neurosyphilis and may even escape syphilis altogether.

The fourth and last class presents the strangest group of all.

The father and mother present no signs of neurosyphilis, although they undeniably have that disease. The oldest child will some time present some type of neurosyphilis and the rest will be free from this type of disease.

In the C. O. family the oldest child died from hemorrhagic cerebritis, precipitated by neoarsphenamine. It will be observed that the reaction of her blood was absolutely negative while her cerebrospinal fluid was positive. The younger children had positive reactions in the blood in various degrees excepting in the youngest, and without exception all have negative reactions in the cerebrospinal fluid. The only external signs of syphilis in this family was the nasal spur and saddle nose. In a critical survey of the families presented in these tables it will be noticed that usually the first child is affected with neurosyphilis and the rest are free, although in some instances it picks out a child here and there but does not affect the entire family.

TREATMENT

The treatment of children with neurosyphilis presents as many difficulties as the management of adult syphilis of the same type.

The ingenuity of the therapeutist is taxed to the utmost. In the last year malaria has been added to the armamentarium and with decided success. It can be used in any child over 1 year of age. The procedure is fraught with danger and one must be constantly on the alert to terminate it. This form of therapy will be taken up in a separate paper.

COMMENT

A general view of familial neurosyphilis impresses the investigator with its tragic hopelessness. While the patient with dementia paralytica does not as a rule transmit neurosyphilis to his offspring, his heritage of inferior mentality and substandard physique is almost as bad. The neurosyphilitic children of tabetic parents respond to treatment, and one is apparently able to arrest the progress of the disease, but their whole life will be hampered by treatment and limited by observation. And, while they would have died without treatment, they will probably become perpetual charges of society because their treatment has been half-way successful.

CONCLUSION

One must say that with the exception of locomotor ataxia there is no evidence that there is any special neurotrophic strain of *Spirochaeta pallida* transmitted from the parents to the children. This statement is supported by the following facts: In the most severe type of all these diseases, dementia paralytica, the father does not transmit his neurosyphilis to the children through the mother. It is perfectly possible for a father and mother who have no evidence of neurosyphilis to transmit a syphilis to their children that will eventually transmute itself into dementia paralytica or tabes and that will affect only one child. Furthermore, parents who have neurosyphilis or other types than dementia paralytica or tabes may transmit, and often do transmit, syphilis to their offspring in this peculiar manner: the oldest child dies of dementia paralytica and none of the other children have any neurosyphilis at all. As a final word, one must say that in familial neurosyphilis it cannot be proved that a neurotrophic strain of *Spirochaeta pallida* is transmitted, excepting in tabes dorsalis.

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ABSTRACT OF DISCUSSION

Dr. Paul A. O'Leary, Rochester, Minn.: The theme throughout Dr. Dennie's presentation dealt with the question of specific strains of *Spirochaeta pallida* in congenital neurosyphilis. Perhaps I should say that he presented evidence to support the idea that there are no specific strains of the organism. From a study of family groups in which one or more of the same family acquired syphilis from a different source, the bulk of the evidence was decidedly against there being a specific strain of the organism but highly in favor of the conception that the soil on which the organism grew determined the course of the infection. My experience with congenital syphilis confirms this observation. In fact, the few examples of syphilitic families in which neurosyphilis predominates throughout the infected members is decidedly rare in contrast to the syphilitic families that manifest a variety of forms of syphilis. I have been repeatedly impressed by clinical observation that evidence is still lacking in support of the existence of specific strains of *Spirochaeta pallida*, notwithstanding laboratory studies to the contrary. It is difficult to appraise the results of the treatment of congenital neurosyphilis, because it frequently not only is transient but also is a bizarre disease. For example, it is unusual to find a patient with frank juvenile tabes because manifestations of cerebrospinal syphilis or general paralyses are usually found in the same child. The few cases with outstanding therapeutic results linger long in the mind, while those who have progressed to juvenile paretic states are forgotten. I have found malaria therapy of value but less successful than in acquired syphilis. The inference to be drawn from a discussion of congenital neurosyphilis is that spinal fluid examinations should be done on all children at the time the diagnosis of congenital syphilis is made or shortly thereafter. This idea has been accepted as essential in the adequate care of patients with acquired syphilis, but in congenital syphilis the need for such a procedure has not been sufficiently emphasized or accepted.

Dr. Charles C. Dennie, Kansas City, Mo.: The point brought up by Dr. O'Leary is, perhaps, one of the most important points in the presentation, especially in the cases in which clinically there are a great many different types of involvement of the nervous system other than syphilis. It brings out the fact that every child who has a nervous disease that cannot be classified should have the benefit of a lumbar puncture. In some instances it will be found that this child apparently is the only one in the family who has syphilis, and sometimes it will be found that this disease of the nervous system will clear up under antisyphilitic treatment. Every child who has locomotive difficulty that cannot be definitely classified deserves a lumbar puncture, for in many of these cases the clinical symptoms are due to cerebrospinal syphilis.

The Schizothymic Temperament.—The person of average schizothymic temperament shows a tendency to be independent of others; that is to say, he tends to be "introvert" rather than "extrovert' (in the sense of Jung). He does not vibrate in sympathy with his surroundings; he likes to be alone rather than with other people. But if he remain healthy, he may do excellent work; many great scholars, rulers and aristocrats have been asthenics of schizothymic temperament.—Barker, L. F.: Psychology and Medicine, Porter Lectures, Series 1, University Extension Division, Kansas City, 1930.

SCHÖNLEIN-HENOCH'S PURPURA WITH INTRA-OCULAR HEMORRHAGE AND IRITIS

REPORT OF A CASE *

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The syndrome which came to be known as Schönlein-Henoch's purpura was called to attention by Henoch[1] in 1874. He reported five cases, all in young persons, in which cutaneous eruptions and articular swellings were followed by colic, vomiting, intestinal hemorrhage, pain and moderate fever, without involvement of the heart. Groups of cases have been reported since in which various symptoms have been emphasized; some authors have remarked on the prevalence of arthritis, and others have remarked on the colic and abdominal pain. The reports have in common notation of the hemorrhages into the skin, of free blood in the intestinal tract and of nephritis. Schönlein, about 1832, emphasized the articular symptoms, which in many cases may be the first and most pronounced symptoms noted. The disease in later years has been referred to as Schönlein-Henoch's purpura, although according to Osler the first description of the condition was given by Willan in 1808.

Goldstein[2] wrote: "Schönlein-Henoch's purpura is related to a large group of anaphylactoid disorders, such as serum sickness, food allergy, angioneurotic edema and urticaria, but allowing for individual variation the name is best reserved for the joint and kidney symptoms."

The disease occurs most frequently in young females. It rarely occurs in patients aged less than 3 years, and is most common in the second decade of life. The onset of the attack varies. There may be headache, anorexia and prostration, or the initial features may be a purpuric outbreak or an attack of abdominal colic. Irregularity in the onset, duration and character of the symptoms in this type of purpura is well recognized. Purpura or the erythematous group of cutaneous lesions often occurs before, and sometimes long after, the abdominal crises.

That a definite chain of symptoms constituting the disease exists is now universally recognized but, as Henoch stated, a link in the chain may be missing. Convulsions of an epileptiform type complicated a case reported by Grace.[3]

The ocular signs of purpura are few. Rarely, the lids are the seat of hemorrhagic deposits, although hemorrhages into the optic nerve and retina have been noted, as well as optic atrophy. Motolece[4] saw bilateral papillitis, with alternating convergent strabismus, from rheumatoid exanthematous purpura. The patient was a child, aged 3 years. The day after the onset of febrile symptoms, purpuric patches appeared on the skin of the abdomen and limbs, and convergent strabismus developed. In one eye, hemorrhages were associated with the papillitis.

So far as I have been able to learn from a search of the available literature, ocular hemorrhages and iritis with corneal opacification have not been reported as a complication in Schönlein-Henoch's disease, although it is logical to presume that, since rheumatoid arthritis, with hemorrhages into the skin, is not uncommon, some cases bordering on this disease must have been observed. The difficulty in arriving at a diagnosis of the malady lies in the variability and inconstancy of the symptoms; a complete chain seldom is present. Acute iritis, with intra-ocular hemorrhage and staining of the cornea with blood, was seen in Schönlein-Henoch's syndrome, together with the following history and observations:

REPORT OF CASE

A woman, aged 30, was referred to the clinic and came under my observation in August, 1927, because of an attack of acute iritis and keratitis in the left eye. The history of this patient could not be considered relevant at this time and not until two years later did symptoms develop which, when regarded in connection with incidents that had occurred in previous years, permitted a satisfactory explanation of events that had caused the loss of the right eye and threatened to deprive her of what sight she had in the left.

The patient had been a healthy child until she was 4 years old, when she had scarlet fever, complicated with severe rheumatic fever. Subsequent to this attack of rheumatic fever she was unable to walk for a year. She slowly recovered her strength, however, and was in good health until she was about 14 years of age. (She remembered that as a child she had had frequent epistaxis.) She began to menstruate four months before she was 12 years of age. Menstruation was natural and regular but was associated with severe cramps for three or four days, which required her to go to bed at each period.

At the age of 14 years the patient had a severe attack of measles, associated with general anasarca and nephritis. Her recuperation was rather slow and she spent considerable time in outdoor exercise in an attempt to regain her strength. Before she had fully recovered her usual health she was thrown from a horse, striking on her head, and was unconscious for five hours. Following this injury the menses stopped for six months, but about three times during the six months she had severe pains in both lower quadrants of the abdomen. At the end of six months she consulted physicians, who prescribed medicine; the periods were resumed but were irregular, from four to seven weeks apart. She had a great deal of cramping pain with the menses, which required her to be in bed two or three days. At 18 years of age she had an attack of rheumatism and what was diagnosed as purpura hemorrhagica, for which she spent several months in the hospital. The following year, because of the severe pains in the lower part of the abdomen, physicians thought she had appendicitis, and the appendix was removed.

Following the operation, the menstrual periods stopped altogether for five months, and thereafter regularly every four weeks she had epistaxis for four or five days. There was also vomiting of blood, associated with severe pains and cramps in the lower part of the abdomen. Occasionally there were small hemorrhages into the skin of the lip. This condition continued until she was 21 years of age, when she was referred to the Mayo Clinic in 1920 because of the menstrual disturbance and so-called stomach trouble and nervousness.

Up to that time the patient had not had trouble with her eyes, and at the time of her visit vision of the right eye was 6/6; of the left, 6/10. The media were clear, and ophthalmoscopic examination gave negative results. There were some convulsive movements and areas of anesthesia and other data which led to an opinion on the part of some of the examiners that she was suffering from chorea and of others that her symptoms could be accounted for on the basis of hysteria. She was sent home with a diagnosis of chorea. She did not return to the clinic until 1927, but in the meantime she spent considerable time in hospitals.

In this interim, the first trouble with the patient's eye occurred in the autumn of 1923, when, in October and November, she had iritis with corneal ulceration. Her tonsils were

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* From the Section on Ophthalmology, the Mayo Clinic.

* Read before the Section on Ophthalmology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Henoch, Eduard: Lectures on Diseases of Children, New York, William Wood & Co. **2**: 373.

[2] Goldstein, E.: Schönlein-Henoch's Purpura: Report of Case with Review of Literature, M. Clin. North America **12**: 869-881 (Nov.) 1928.

[3] Grace, John: Henoch's Purpura, Practitioner **113**: 419-425 (Dec.) 1924.

[4] Motolece: Ophthalmologic Year Book, 1913, p. 245.

removed in the latter part of that year. In 1920, when she was 23 years of age, she underwent uterine dilation and curettage to help reestablish natural menstruation. In 1921, she again entered a hospital for systematic study. Her complaints at this time were as follows: (1) no normal menstruation since the appendectomy five years previously, and in its place regular vicarious menstruation from the nose; (2) inability to urinate for eighteen months without either catheterization or enema, and (3) inability to eat or drink without vomiting three or four minutes afterward. The inability to eat or drink was corrected by passing a large stomach tube three times. The inability to urinate permanently disappeared after the bladder had been allowed to go unemptied for four days. That year extensive so-called purpura hemorrhagica developed, and lasted for six months. This involved every part of the patient's body at various times. At one time her hands were swollen to twice their usual size and were red with subcutaneous hemorrhages. At another time, two thirds of one thigh was a solid hemorrhagic area.

In 1923, an attack of iritis, with loss of vision in the left eye from hemorrhages, continued for about eighteen weeks. In 1925, the eye again became painful. An extensive search for foci of infection was made. Several teeth were extracted and a submucous resection was done. In June, 1925, the left eye became blind and was enucleated two years later, in March, 1927. The vicarious menstruation continued as before. In 1926, the nasal accessory sinuses were operated on.

Aug. 27, 1927, as has been noted, the patient returned to the clinic because of an attack of iritis of the right eye. Five days before she came to the clinic, severe headache came on which lasted for about three days. On the third day of the headache, the right eye became inflamed for the first time, and whereas hitherto she had been able to read fine print with ease without glasses, she had not been able to see more than moving objects for two days. The eye was painful. The lids were slightly swollen, the margins were covered with secretion, and the bulbar conjunctiva was markedly swollen and congested. The cornea and aqueous humor were cloudy, the iris was congested, and the pupil was 4 mm. in diameter and did not react to light.

Nothing significant was discovered in the general examination. The Wassermann reaction of the blood was negative. Roentgenograms of the thorax and nasal accessory sinuses gave negative information. Albumin or sugar was not found in the urine. The differential blood count was not significant of disease. Blood platelets numbered 210,000 in each cubic millimeter of blood. The coagulation time was five minutes; the bleeding time was one and a half minutes.

The patient was placed in the hospital to receive local treatment. Atropine was instilled into the eye every two hours, and hot compresses were applied three times a day. She was given 5 cc. of boiled milk intramuscularly, from which a slight reaction occurred. Very little change was noted in the condition of the eye. In addition to four injections of milk given intramuscularly, she was given twenty doses of 100 grains (6.5 Gm.) each of sodium salicylate in oil, by rectum, at intervals of four days. The eye gradually became clearer; the congestion receded and vision improved. In the early part of October she complained of considerable pain in the right upper abdominal quadrant. There was tenderness on pressure over the region of the gallbladder. She had been nauseated most of this time, and vomited most of her meals. October 17, the temperature rose to 101.2 F. The following morning it was normal. Examinations of the blood and urine at this time were not significant of disease. The patient was seen by medical and surgical consultants and was transferred to another hospital for observation in a surgical service with practically the same symptoms she had had for the past eight years. There seemed to be sufficient evidence of disease of the gallbladder to warrant cholecystectomy. This was done, Nov. 2, 1927, on which date the surgeon (Walters) reported negative results of exploration of the stomach, duodenum and pelvis. The pathologic report was of chronic catarrhal cholecystitis, strawberry gallbladder, and a single papilloma, 2 mm. in diameter. The surgeon felt that although the cholesterosis and papilloma explained the biliary colic, he did not believe they had any influence in the production of the intermittent pyrexia. Convalescence was uneventful, and the patient was dismissed from the hospital, November 18. She had two normal menstrual periods following this operation. Her vision gradually improved after she went home, and for several months she was able to continue with her work as a teacher of piano and mandolin.

The condition of the blood was studied by a clinical hematologist (Giffin), who felt that the history of intermittent swelling of the knees and ankles, with purpura, recurrent iritis and choreiform attacks, was more indicative of the rheumatic type of purpura than of purpura hemorrhagica.

In July, 1928, the patient had another attack of inflammation in the right eye and was blind for four weeks, after which the vision improved again and remained good until January, 1929. She returned to the clinic, Jan. 4, 1929, complaining of progressive blindness in the right eye, with frequent attacks of pain and redness. For several months, about every four or five weeks, she had had either excessive nosebleed or subcutaneous hemorrhages. Occasionally there would be no subcutaneous hemorrhage or nosebleed and the eye would become very red and painful, with diminution of vision. She felt well except for this vicarious menstruation and difficulty with the right eye. Although her sight had been sufficiently good for her to continue her work as a musician, the vision was now reduced to 3/60. There was peripheral contraction of the fields; intra-ocular tension was normal to palpation; the pupil reacted slightly to light. In the central portion of the cornea, over an area from 5 to 6 mm. in diameter, there was an interstitial crystalline deposit; the periphery of the cornea was clear. The opacity in the cornea was not sharply outlined; there was no vascularity of the cornea and no keratic precipitates. She was kept under observation for a few days until the eye became so badly inflamed and painful that it was felt necessary to put her in the hospital. Intravenous injections of typhoid vaccine were given, which produced a mild febril reaction. The circumcorneal injection disappeared, but th posterior surface of the cornea became completely covered wit keratic precipitates, giving a creamy appearance. Vision was reduced to perception of light. She was kept in the hospital under observation for five months. It soon became obvious that her condition responded in no way to the administration of salicylates or foreign proteins. The pain in the abdomen was so severe that daily injections of morphine were required to give relief.

Early in February, typical purpuric areas developed over the right buttock and right thigh. Preceding the hemorrhage into the skin, there was intense pain and burning for a few hours. Later, the right forearm and hand became markedly edematous, with much local pain, and these manifestations were followed by areas of hemorrhage which began as small spots and spread rapidly. After a few days the swelling would go down and the discoloration would disappear, only to reappear in some other part of the body. The legs, feet, hands and forearms were continually affected in a few shifting places, while a few large areas occurred on the buttocks, thighs and shoulders. The face, the anterior aspect of the thorax, and the abdomen were always free from this disorder. The condition was now diagnosed as Schönlein-Henoch's purpura. The hemorrhagic areas continued to form without interruption for about three months, and became gradually less extensive until the time of the patient's dismissal.

During the five months that the patient was under observation, the eye was continually intolerant to light. After several weeks, the congestion of the conjunctiva cleared away and the eye was less painful if the patient was left in darkness. The corneal surface never lost its luster. There was a dark brown stain of the substantia propria which was more dense near the center, where there were crystalline bodies; the opacity faded toward the periphery. The cornea gradually cleared, aided somewhat perhaps by the employment of heat and ethylmorphine hydrochloride, which were applied regularly. The patient was dismissed, May 30.

COMMENT

My experience has verified statements regarding the course of severe cases of Schönlein-Henoch's purpura, the irregularity of onset and of symptoms, and the apparent ineffectiveness of treatment.

ABSTRACT OF DISCUSSION

Dr. Lawrence T. Post, St. Louis: Dr. Benedict has presented an interesting case of Schönlein-Henoch's purpura during the course of which there occurred severe intra-ocular hemorrhage, iritis and keratitis. He has pointed out the clinical features of this type of purpura. The principal underlying differential point from other purpuras is that in this entity one is dealing with a disease of the capillaries and not of the blood. From every point of view this case fits into the picture of Schönlein-Henoch's disease. One hundred and sixty-five cases of purpura of all types seen in Barnes Hospital, the outpatient department of Washington University School of Medicine and the St. Louis Children's Hospital, in the last ten years, were reviewed with reference to pathologic changes in the eyes. There was doubt in many cases as to whether the disease was the so-called Schönlein-Henoch's or not. Unless a hematologic basis is used there are too many different clinical pictures associated with purpura to permit of many unquestioned diagnoses. The syndrome varies with the individual's response to the toxin. Of the 165 cases, 15 were probably Schönlein-Henoch's disease. Of the entire group, only 4 showed any eye changes and none of these were definite Schönlein-Henoch cases. In two there were small retinal hemorrhages and in two others conjunctival hemorrhages. As the author has said, there does not appear to have been recorded in the literature any case similar to the one he has described. The question arises whether the ocular condition was from the disease itself or from some extraneous factor. That massive intra-ocular hemorrhages should occur would seem not unreasonable, as the capillary structure of the eye might be involved in the same way as the capillary structure elsewhere in the body, and small retinal hemorrhages have been noted. Such a distribution in this patient seems more likely than in many other patients because of the extremely wide distribution of the hemorrhages, almost every part of the body having been involved. To account for the iritis and keratitis as due to the same agent as the purpura is certainly possible, but in view of the absence of similar cases it would seem perhaps more likely that some other source of infection was responsible, such as tuberculosis, cholecystitis, tonsillitis, appendicitis, scarlet fever or nephritis, all of which, except tuberculosis, had been found in this patient. In such a diseased individual it would probably not have required an especially virulent toxin to cause the lesions described.

Dr. F. Park Lewis, Buffalo: I have seen but one typical case, in a boy, aged 12, of Jewish parentage, a resident of Toronto. Eight days prior to his visit he had a severe chill followed by fever and delirium. He was ill for a week. With the chill developed great lameness, his arms and legs becoming useless because of the intense pain. He had previously had attacks of asthma but otherwise had been well. During the fever, petechial spots appeared on the arms and legs and by the following day had covered the entire body. Suddenly he lost the sight of the right eye. At the time of the examination, fingers could be counted at 4 feet. Extensive retinal hemorrhages were present. So far as I have been able to discover in the literature, intra-ocular involvements have not been noted. A peculiarly interesting fact connected with this case is that a sister, aged 16 years, had developed keratoconus. The origin of this form of purpura is as obscure as is that of keratoconus. It may be dependent on the absence of some element necessary to the integrity of the tissues; it may have an endocrine basis. In any event, it offers an exceedingly interesting field of research in the department of biochemistry, and the discovery of the missing element in Schönlein's disease may help to explain why the integrity of the cornea gives way.

Dr. William C. Finnoff, Denver: I should like to ask whether the patient showed any tendency to excessive bleeding after minor operations. Also whether the author has seen any reference in the literature to hemorrhage around the globe or in the region of Tenon's capsule or around the insertion of the ocular muscles. I have such a case at the present time that might fall into that category.

Dr. William L. Benedict, Rochester, Minn.: Answering Dr. Finnoff, the bleeding time and coagulation time show no variation from normal. There was no unusual bleeding after surgical operations. This patient had had a gallbladder operation which was uncomplicated. Other operations were done elsewhere but I do not know of any complications. The first eye was lost from intra-ocular hemorrhage and secondary glaucoma. The second eye on two different occasions was filled with a hemorrhage so dense that I was unable to see details in the iris. In both instances, that has cleared. After the first intra-ocular hemorrhage the vision returned to 6/6; after the second hemorrhage I had a letter from the girl saying she was back at work as a music teacher and able to see. The maximum visual acuity never was recorded, but there was nothing to lead me to believe that this patient had hemorrhages about the orbit other than this I have mentioned. It is commonly believed by those who saw the patient that the pains in the joints were due to hemorrhages into the synovial membranes and that the pain in the abdomen was due to infiltration of the omentum and membranes of the abdomen. There is a well known group of women who have repeated hemorrhages from the uterus that I think belong in this group, and I think it has been wisely suggested that many persons with hemorrhages of the eye belong to this group.

CAUSES UNDERLYING INCREASED INCIDENCE OF BROAD TAPEWORM IN MAN IN NORTH AMERICA [*]

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In a recent publication I [1] pointed out that fish-eating dogs must constitute an important reservoir of *Diphyllobothrium latum* Linnaeus, the broad tapeworm of man, in Canadian lake regions and that in some sparsely populated districts dogs may be the most important agents in bringing about the completion of the life cycle of this parasite and thus maintaining it by continually reinfesting nearby lakes with the eggs of the broad tapeworm.

In another recent publication I [2] reported the successful experimental infestation of two bears with the broad tapeworm. This experiment was performed because bears are common in northern lake regions where fish are infested with the larvae of this worm. Bears are known to eat fish during the spawning season in the spring when they can readily catch them. Bears, then, may also help in the reinfestation of fish with plerocercoids of the broad tapeworm by passing eggs with their feces into the water in which they often wade and swim. That several other carnivores may serve as hosts of the broad tapeworm was also indicated in this publication.

The present paper is a report on an expedition made during July and August of 1929 in the northern half of Minnesota and in Canada in an attempt to find proof for these contentions. The work has, accordingly, been limited to the incidence of broad tapeworm in dogs and bears.

Since Riley [3] had reported a broad tapeworm infestation in an Indian child from the White Earth Indian Reservation and since, in Canada, I [1] found that Indians

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[*] From the Department of Zoology, University of Michigan.

[*] This is one of a series of investigations carried on under grant 158 awarded by the American Medical Association to Profs. George R. La Rue and A. S. Warthin of the University of Michigan, under the former of whom the work has been conducted and to whom I here express my grateful appreciation.

[1] Vergeer, Teunis: The Dog a Reservoir of the Broad Tapeworm, J. A. M. A. **12**: 607-608 (Feb. 23) 1929.

[2] Vergeer, Teunis: Dissemination of the Broad Tapeworm by Wild Carnivora, Canad. M. A. J. **19**: 692-694 (Dec.) 1928.

[3] Riley, W. A.: The Broad Tapeworm, Dibothriocephalus Latus, in Minnesota, J. A. M. A. **73**: 1186 (Oct. 18) 1919.

have many dogs and feed them on raw fish, I decided to visit the following three Indian reservations in Minnesota for the purpose of examining the Indians' dogs for broad tapeworm: White Earth Reservation, Mahnomen County; Red Lake Reservation, Beltrami County, and Cass Lake Reservation, Cass County. Only the Red Lake Reservation remains as a reservation, but many Indians still live on the two former reserves.

Aided in the collection of fish by Chief Warden Charles Masoner and his assistants, whom the Minnesota Department of Game and Fish kindly permitted to assist me, a preliminary examination was made of fish from one or more lakes on each of these reservations to determine whether there were infested fish that could be the source of infestations with adult worms in dogs. Plerocercoids were not found in any of a total of ninety-two fish from nine lakes with the exception of one plerocercoid of *D. latum* in each of two fish from Leech Lake, Cass County. Two dogs that were known to eat fish regularly were treated with appropriate doses of arecaline hydrobromide. Neither had *D. latum*. One of them was purchased and to it the two plerocercoids from fish of Leech Lake were fed. They failed to develop. Because infested fish were at least extremely rare in the lakes on or near these Indian reservations, no further attempt was made there to recover the broad tapeworm from dogs.

The vicinity of Ely, Minn., is a known endemic area for *D. latum*.[4] Ward,[5] Essex[6] and Magath,[4] who directed or made a study of the broad tapeworm there, have paid little attention to the dog as a carrier of *D. latum*. Ward[7] reports that "the adult parasite was recovered . . . also from the dog as the result of natural infestation." While in Ely, I learned that one specimen of *D. latum* had been collected by Ward's party from one husky. Ward[7] also calls attention to the immature *D. americanum* collected by Hall and Wigdor[8] in Detroit and suggests that it may be immature *D. latum*. In an examination of twenty-two dogs from Detroit I discovered one adult *D. latum*, and from La Rue I received another adult broad tapeworm collected by W. A. Troy from another dog from Detroit. These tapeworms were both natural infestations.

Since little work had been done on the dogs in and about Ely, I decided to examine some of the dogs there. With the aid of Chief Warden William Hanson and his assistant Mr. Graig, a preliminary examination of fish was also made, and, as previously reported by Magath,[4] in Long Lake I found that *Esox lucius* Linnaeus, the great northern pike, and *Stizostedeon vitreum* Mitchill, the wall-eye, were heavily infested with plerocercoids of *D. latum*.

I had previously examined perch, *Perca flavescens* Mitchill, from Portage Lake, Houghton County, Mich., another endemic area,[9] but had never found any infested with *D. latum* plerocercoids although Magath[4] reported them from Long Lake. Two out of four perch from Long Lake I found infested: one with two, the other with three plerocercoids. These were fed to a dog that had previously been treated with arecaline hydrobromide, had not passed tapeworms and was negative for eggs of *D. latum*. One plerocercoid developed into a small *D. latum*.

It is probable that the food eaten by perch in Portage Lake, Michigan, is very different from that in Long Lake, Minnesota. The perch in Portage Lake fed almost exclusively on crayfish. This may account for failure to find them infested there.

Attempts were made to collect trout from Burntside Lake and Long Lake because Magath[4] also reports these fish to be capable of taking the infestation, but I was informed by local game wardens that trout had never been taken from Long Lake and only rarely from Burntside. A close scrutiny of Magath's work reveals not a single record of a plerocercoid of *D. latum* taken from trout and only one record of a single plerocercoid found in other fish from Burntside. Magath states, however, that he found only about 10 per cent of the fish in Burntside Lake infested with larvae.[4] In the examination of twenty-three wall-eyes, one great northern pike, and two burbot, *Lota maculosa* Le Sueur, from Burntside Lake, I did not find a single plerocercoid. Even with the expert aid of Mr. Hanson and his assistant, we were not able to take a single trout. A total of thirty-five trout, twenty-six *Cristovomer n. namaycush* Walbaum, and nine *Salvelinus f. fontinalis* Mitchill have been examined by me[9] from the endemic area in the upper peninsula of Michigan and twelve very large trout, *Cristovomer*, from Lake Nipigon, an endemic area in Ontario.[2] In not a single instance has a broad tapeworm plerocercoid been found. Although some species of trout in Europe are known to be carriers of *D. latum* plerocercoids, the American species of trout must be considered to be free from these until the contrary is proved. The results of my examination of fish from lakes near Ely are in partial disagreement with those of Magath in that I find infested fish in lakes comparatively far from Ely or any other city. In fact, I found plerocercoids in fish from lakes as far northwest as the Canadian border and the previous year I found infested fish in practically uninhabited regions about a hundred miles north of this point across the border and tried to explain their presence by the common occurrence of bears[2] and other carnivores which I believed must serve as hosts.

Magath assumed that the inhabitants of Ely were largely responsible for the pollution of Long Lake with broad tapeworm eggs and estimated that perhaps as high as 10 per cent of the inhabitants were infested with the adult *D. latum*.[4]

I intend to show that, although man may originally have been a rather important agent in causing the infestation of fish in Long Lake, the most important agent, the dog, has thus far not been recognized as such.

In my work I have limited myself to the examination of dogs, and in the form of a suitcase full of adult specimens of *D. latum* from dogs I have collected the most convincing evidence that they are the greatest source of infestation in the vicinity of Ely. Fifty-two dogs have been examined. It should first of all be observed that most of these dogs have been better cared for than the average. Twenty-three belonged to the Department of Fish and Game of Minnesota, three to Canadian rangers and four to a dog breeder; the remaining twenty-two belonged to private owners. To all these people I am indebted for allowing me to treat,

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4. Magath, T. B.: Experimental Studies on Diphyllobothrium Latum, Minnesota Med. **10:** 614-616 (Oct.) 1927.
5. Ward, H. B.: A Study on the Life History of the Broad Fish Tapeworm in North America, Science **66:** 197 (Aug. 27) 1927.
6. Essex, H. E.: Early Development of Diphyllobothrium Latum in Northern Minnesota, J. Parasitol. **14:** 107 (Dec.) 1927.
7. Ward, H. B.: Studies on the Broad Tapeworm in Minnesota, J. A. M. A. **92:** 389-390 (Feb. 2) 1929.
8. Hall, M. C., and Wigdor, M.: A Bothriocephalid Tapeworm from the Dog in North America, J. Am. Vet. M A., N. S. **6:** 355-362.
9. Vergeer, Teunis: Diphyllobothrium Latum (Linn. 1758), the Broad Tapeworm of Man, J. A. M. A. **90:** 673-678 (March 3) 1928.

in many cases, their valuable dogs. I am also indebted to Mr. Graig for his courageous assistance and to the Department of Game and Fish of Minnesota who kindly allowed Mr. Graig to give me his time.

The results of five treatments could not be determined. Other tapeworms than *D. latum* were removed from only four of these fifty-two dogs, an unusually low percentage of infestation. Fifteen dogs, more than 30 per cent, had one or more adult specimens of *D. latum.* These fifteen infested dogs had together a total of sixty-five adult and nine or ten immature specimens of *D. latum,* an average of nearly five each. The greatest width of these worms was from 4 to 16 mm., most of them more than 10 mm. wide. The length was from 40 to 270 cm.

Several of the fifty-two dogs were regularly given an anthelmintic treatment and had been treated rather recently. Moreover, nearly all the dogs belonging to the Department of Game and Fish were kept in cages. Fish was used only occasionally as food and the food was nearly always cooked. The proportion of infestation (21 per cent) of the dogs of the department is far below that of the dogs in Ely (55 per cent), while this establishment is only 5 miles from Ely and on the shore of Fall Lake, into which Long Lake drains. This 21 per cent infestation might still be much lower if visitors who come to see the dogs could always be prevented from surreptitiously giving dogs freshly caught small fish. Four of its five infested dogs had received an anthelmintic treatment the preceding March and had in all only five broad tapeworms, while the average number of tapeworms for all other infested dogs treated was six each. It is remarkable that a single dog belonging to the Canadian rangers, far from any town, had at least twenty-four specimens of *D. latum,* of which five or six were immature.

There are, of course, many more dogs in the vicinity of Ely, but it is believed that the infestations in these fifty-two dogs are representative of those in dogs in this area and that the work done will suffice to demonstrate the importance of the dog as a carrier of the broad tapeworm.

Some time was spent in an attempt to determine in what ways the millions of eggs passed daily by all these tapeworms could get to water in which they could develop and ultimately infest fish. The establishment of the Department of Game and Fish is located at Winton on top of a hill which slopes steeply down to Fall Lake. Drainage from temporary fecal deposits secured by cleaning the cages and from the few dogs that were tied up outside because no cages were available may bring eggs into Fall Lake. In winter these huskies are used for sleighing over the frozen lakes and thus they deposit eggs on the ice. Whether winter freezing is harmful to the eggs of the broad tapeworm is not known. The heavily infested dogs belonging to the Canadian rangers live with them on the shore of Basswood Lake and run free. Their feces are washed from the beach by the waves caused by every strong wind and thus they infest water in the wilderness a considerable distance from any town or habitation. Most privately owned dogs in Ely run loose on the streets from which, with every rain, broad tapeworm eggs may wash down into the storm-sewers, which discharge into a settling tank which opens in Long Lake. This tank may not always eliminate all eggs. Many dogs accompany people to the shores of lakes, nearby or distant, and there defecate on the beaches. If the settling tank of the Ely sewerage system is effective in eliminating broad tapeworm eggs, then the danger of reinfestation by eggs passed from man is almost nil and dogs or other carnivora must be almost wholly responsible for the maintenance of the infestation in the lakes near Ely.

INFESTATION OF BEARS WITH THE BROAD TAPEWORM

In the beginning of this paper, mention was made of the bear as a possible natural host of the broad tapeworm. Near the city of Ely bears are not found, but a few miles north and west of Ely in a territory used only for resorting purposes and farther north into Canada bears are quite common. In an attempt to determine whether bears in the wild state had broad tapeworm, I collected feces of bears at various places where resorters reported that they had seen them almost daily feeding on the refuse from tourist camps. Only strictly fresh feces were collected, and the number of samples taken equaled the number of bears reported seen at any one place. To prevent possible duplication where one bear might have defecated twice within a very short time, two apparently similar samples were not taken within walking distance of each other.

In this manner a total of ten fresh samples of feces of bears were obtained. Eggs typical of *Diphyllobothrium latum* were found in four instances. In two of these the eggs were extremely numerous; in one, rather numerous, and in one only a small number of eggs were found on any one slide of the decanted precipitate of the sample of feces.

This proves that wild bears in their natural state are infested with the broad tapeworm and confirms my previous work on this point.[2]

Although bears cannot be prevented from catching fish in spring, in this area between Ely and the Canadian border and elsewhere they can be prevented from feeding on camp refuse by fencing the refuse dumps or by burying offal in deep holes or by burning it. One wall-eye from Basswood Lake was infested with two plerocercoids of *D. latum.* I happened to obtain this fish after it had been boned at a camp on the shore of this lake, just before the bones and adhering flesh were discarded to go to the dump. The two fillets from either side of the fish were free from *D. latum* larvae but in the flesh adhering to the bones of the back I found the two plerocercoids. Had I not found these, a bear certainly would have eaten them. This example may bring home the importance of preventing wild carnivora from feeding on camp refuse in lake regions.

Dogs should never be allowed to eat raw or insufficiently cooked fish or viscera of fish.

Such prevention would aid materially in the reduction of infestation by the broad tapeworm.

SUMMARY

Investigation has demonstrated that dogs in the region extending from Ely, Minn., north into Canada are heavily infested with *Diphyllobothrium latum,* the broad tapeworm of man, and are largely responsible for the continued infestation of fish with the larvae, which may develop in man.

Numerous eggs typical of those of *D. latum* were found in four of ten samples of feces of wild bears.

Dogs and wild carnivora may cause the further distribution of this parasite into uninhabited, as well as heavily settled, regions in North America.

REACTION TO ANTIMENINGOCOCCUS SERUM

PRELIMINARY REPORT *

ARTHUR DURYEA, M.D.
HONOLULU, T. H.

During several quarantine periods for epidemic cerebrospinal meningitis at Maliola Island, Honolulu, T. H., early diagnosis and prompt treatment proved the most effective agent in obtaining a low mortality rate (14 per cent).

Quarantine conditions were such that it was possible to isolate and treat patients in the very earliest hours of the disease. It was decided that any patient with the following signs and symptoms should have a diagnostic spinal tap and prophylactic administration of antimeningococcus serum: (1) headache; (2) fever (over 38 C., or 100.4 F.) with no obvious cause; (3) either a positive Oppenheim reflex or Gordon reflex. The classic textbook picture of retracted neck, Kernig's sign, Babinski's sign, all appear too late to be of value in early diagnosis.

In many of our cases tapping was done so early in the disease that clear spinal fluid under increased pressure was found on the initial tap, but with no abnormality of chemistry or cell count. On subsequent examinations a high cell count, absent sugar, positive globulin and characteristic organisms were found. In some cases several days elapsed before organisms were found either by culture or by direct smear. It seemed necessary, therefore, to ascertain the response of normal individuals to the intraspinal administration of antimeningococcus serum.

Two normal healthy men who had not been exposed to epidemic cerebrospinal meningitis were selected as controls. Twenty cubic centimeters of spinal fluid was withdrawn by cisternal puncture and replaced by 20 cc. of a concentrated serum preparation. Subsequently six cisternal and lumbar punctures were done, and fluid removed for examination only.

Case 1.—Four hours following the administration of serum the patient was nauseated and complained of a slight headache. His temperature never went above 37.6 C. (99.7 F.), and no abnormal neurologic phenomena developed.

Case 2.—Five hours after administration of serum the patient complained of headache, was nauseated and vomited several times. His temperature three hours after the administration of serum was 38 C. (100.4 F.); six hours after, 38.2 C. (100.7 F.); nine hours after, 37.8 C. (100 F.), and thereafter normal throughout two weeks of observation. The patient developed absolutely no abnormal neurologic phenomena. In spite of the repeated cisternal punctures, which were done without local anesthesia, there was only slight soreness in the region of the puncture and no reluctance to submit to puncture.

Reactions Observed *

		Cell Count	Adjusted Count	Sugar	P. N.	Necrosis of P. N.	Monos.	Globulin	R. B. C. in Sediment	Bac.	Culture	Condition of *Fluid*
Case 1	3/ 4/30	4	...	+++	—	..	+	—	—	..	..	Clear
	3/ 5/30 a.m.	3,800	...	+++	+++	+	++	++	—	..	..	Cloudy
	3/ 5/30 p.m.	1,520	...	+++	+	+	—	—	—	..	..	Slightly turbid
	3/ 6/30	1,080	...	[illegible]	+	—	+	—	+	..	..	Slightly turbid
	3/ 7/30	100	...	++++	++	—	+	—	++	..	..	Slightly bloody
	3/12/30	180	150	+++	++	++	++++	—	+	..	..	Water clear
Case 2	3/ 4/30	2	...	+++	—	..	+	—	—	..	..	Clear
	3/ 5/30 a.m.	4,640	...	+++	+++	—	++	+	—	..	..	Cloudy
	3/ 5/30 p.m.	Over 4,000	...	[illegible]	++	+++	+	+++	—	..	..	Cloudy
	3/ 6/30	1,880	...	[illegible]	++	+	—	+	+	..	..	Cloudy
	3/ 7/30	440	400	++++	++	+	+++	—	+	..	..	Slightly turbid
	3/ 9/30	200	175	+++	—	+	++++	—	+	..	..	Clear
	3/13/30	300	300	++	+	++	++++	—	—	..	..	Clear
Normal		10	...	+++	..	..	..	..	..	..	..	Clear
Epidemic cerebrospinal meningitis		High	...	+++ to —	..	..	..	++ to ++++	..	+	+	Cloudy

* Laboratory work by Dr. E. A. Fennel. P. N., polymorphonuclear neutrophilic leukocytes; Monos., mononuclear leukocytes; R. B. C., red blood cells; adjusted counts with allowance for red blood cells; Bac., bacteria.

The accompanying table shows in detail the reactions of the two men. As compared with our epidemic cerebrospinal meningitis cases the response of the spinal fluid differs only in the continued presence of sugar in normal, or greater than normal, amounts, and in the absence of bacteria.

Alexander Young Hotel Building.

ALLERGY AND THE ACID-BASE BALANCE

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In presenting at this time the hypothesis that there is an intimate connection between the state of allergy and the acid-base balance in the body, I do not wish in the least to disparage the sensitization theory and the work of desensitization that has been built upon it. These things are of immense value; indeed, they constitute the greatest advance that has been made in the understanding and treatment of the allergic ailments. For instance, it is nowadays known that a normal nonallergic individual can be passively sensitized locally by the intracutaneous injection of serum taken from an allergic individual, and that if the recipient then takes an article of food that affects the donor the locally sensitized area responds by reaction; this is undoubted proof of the existence of such a thing as sensitization. Furthermore, it is known that carefully performed skin tests will sometimes make it possible to detect the offending substance in the environment, and that often by withdrawal of the patient from the substance or the substance from the patient, or by desensitizing him to it by injections or by the feeding of increasing doses, one is able to alleviate markedly or cure his malady.

But there are certain other things that have not been learned as well: 1. Skin tests are certainly not infallible[1] and give positive reactions in only about 50 per cent of the cases. 2. Clinical cure can exist in the presence of the offending substance in spite of the fact that the skin reactions remain positive[2]—witness Walker's[3] recent report of 100 patients with pollen hayfever apparently cured by desensitization, in 44 of whom the skin tests were not changed at all, and in only 22 of whom were marked positive reactions changed to negative. 3. Numerous persons are convicted of sensitization by skin tests though they never throughout their lives manifest any allergic symptoms. 4. Allergic persons are peculiarly susceptible to emotional influences and atmospheric conditions, which facts accord but ill with the exclusive immunologic basis on which sensitization-desensitization studies have been placed. 5. A sea voyage or a sojourn at a high altitude often brings relief to a sufferer, whether he is pollen sensitive or not. 6. The present rewriting of the whole of immunology by Manwaring and his associates will soon necessitate restating this sensitization hypothesis in the new terms, a task that may be found somewhat difficult.

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[1] Eyermann, C. H.: Tr. Am. Laryngol., Rhin. & Otol. Soc. 33:477, 1927.

Therefore I think it might be of some value to medical science if enthusiasm for the exclusive study of sensitization and desensitization were abated, at least to the extent of admitting that there are several other factors, perhaps of equal importance, contributing toward the make-up of that whole which is known as the allergic state.

UNDERLYING METABOLIC DYSCRASIA

The allergic diseases have in common the following characteristics which can be looked on as extrinsic manifestations of an intrinsic metabolic imbalance, theoretically ascertainable by careful chemical and physical rather than immunologic examinations of the blood. (*a*) The tendency is definitely hereditary. (*b*) These diseases are rarely fatal, though they cause great suffering and inconvenience. (*c*) They are not infectious. (*d*) Emotional upsets sometimes precipitate an attack. Bénard and Joltrain[4] have recently published a paper on emotional asthma, and Lamson[5] has recorded a case in which a sudden surprise slap on the back would invariably precipitate an attack of asthma; and he mentions other patients who could either precipitate or control attacks by drinking hot, cold or carbonated waters. These observations certainly lend little support to the allergen-antiallergen reaction as being the sole mechanism involved, but they do support those who, both in laboratory and in clinic, are with increasing frequency showing that emotional disturbances profoundly affect the metabolic processes. Thus, Barbour and Hamilton,[6] in discussing their new method of determining the specific gravity of fluids say: "In view of the well established but neglected fact that relatively slight emotional disturbances are associated with anhydremia, one wonders how many really normal blood samples have ever been taken." Excitement increased the blood concentration in their dogs sometimes as much as 10 per cent. (*e*) A person may be the victim of several of these diseases at the same time. (*f*) The afflicted person continues to be susceptible to attacks of these diseases throughout life, though the incidence and severity sometimes decline with advancing years. (*g*) Single attacks begin quite abruptly but usually decline gradually. (*h*) Between attacks there are no disturbing residual symptoms save in those instances in which there is developed a characteristic pathologic condition purely as a secondary affair. (*i*) The attacks are often much abated and sometimes entirely suppressed during the course of certain intercurrent maladies noted for their effect on the general metabolism.

In view of the foregoing considerations, the hypothesis may be tentatively proposed that allergic individuals form a relatively small group of persons who over and over throughout their lives suffer from a few diseases to which the great majority of mankind is not susceptible, the immunity of the latter being due to the fact that they are at all times in a state of complete metabolic balance denied to the allergic minority.

POTENTIAL ALKALOSIS AS CAUSATIVE

A definition is necessary here. By "potential alkalosis" I mean the tendency of an individual to store up too much reserve alkali, or, which means the same thing, to neutralize too rapidly or too effectively the acid substances that are constantly being liberated into the blood stream during the course of normal metabolism, the body being essentially an acid-producing organism—and this without becoming clinically alkalotic. In other words, the tendency of the allergic person is toward alkalosis rather than acidosis, though tests of blood, urine and alveolar air might not at all times definitely show this. In support of this contention I shall attempt to show that the more acidotic the patient is rendered, whether by one or other therapeutic measures, by intercurrent disease or by environmental change, the less allergic he becomes. The evidence is presumptive, indeed in some instances perhaps even fanciful, but its presentation may not be entirely unwarranted.

1. *Diabetes mellitus.* The diabetic individual is an acidotic individual, even though at all times he may not be showing ketone bodies in the urine; but it seems that he is rarely subject to the allergic diseases. Joslin[7] has encountered but 6 cases of asthma in more than 6,000 diabetic patients, and he states that Rackemann had never observed the coincidence of the two diseases until he sent him one case. Walker[8] reports that he has seen but two cases of diabetes among from 2,500 to 3,000 asthmatic patients.

2. *Starvation.* Several of the changes observed during starvation, even if only partial, are directly attributable to the acidosis that supervenes. According to my thesis it is this acidosis which caused the unprecedented decline in the allergic diseases among the citizenry of the Central Powers during their period of undernourishment in the latter years of the World War.

3. *Pregnancy.* It is a well known fact that allergic symptoms sometimes disappear entirely during the period of gestation, to reappear after the birth of the baby. It is equally well known that the alkali reserve is sometimes much lowered during pregnancy.

4. *Acute infectious diseases.* In the literature Duke,[9] Balyeat,[10] Pottenger[11] and doubtless others have commented on the fact that an acute bout of fever often entirely relieves allergic maladies for the time being; all practitioners of wide experience know that this is so.

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[2] Rackemann, F. M.: Studies in Asthma, Arch. Int. Med. **41:** 346 (March) 1928.

[3] Walker, I. C: One Hundred Cases of Apparently Cured Pollen Hay-Fever, J. A. M. A **90:** 750 (March 10) 1928.

[4] Bénard, R., and Joltrain, E.. Bull. et mem. Soc. méd. d. hôp. de Paris **50:** 1155 (July 2) 1926.

[5] Lamson, R. W.: So-Called Fatal Anaphylaxis in Man, J. A. M. A. **93:** 1775 (Dec. 7) 1929.

[6] Barbour, H. G., and Hamilton, W. F.: The Falling Drop Method for Determining Specific Gravity, J. A. M. A. **88:** 91 (Jan. 8) 1927.

[7] Joslin, E. P.: Treatment of Diabetes Mellitus, Philadelphia, Lea and Febiger, 1928, p. 733.

[8] Walker, I. C, cited by Joslin (footnote 7).

[9] Duke, W. W: J. Lab. & Clin. Med. **13:** 1010, 1012 (Aug.) 1928.

[10] Balyeat, R. M, in discussion on Duke (footnote 9).

[11] Pottenger, F. M., in discussion on Duke (footnote 9).

Concerning the changes in the body during fever, Macleod[12] writes as follows: "Since the general metabolism is increased, the excessive breakdown of the fatty substances, occurring as it does in the presence of a diminished combustion of carbohydrates, interferes with the proper oxidation of the fatty acid molecules and leads to the appearance of the so-called acidosis products in the urine, and consequently to a relative increase in urinary ammonia. A tendency to acidosis therefore exists. The acidosis may reach a considerable degree of severity and cause the tension of carbon dioxide in the alveolar air to become diminished." In short, during fever as acidosis seizes upon the organism the peculiar something called the allergic tendency loses its hold and recedes temporarily into the background.

5. *Sea voyage.* It is, of course, well known that persons whose asthma or hay-fever is caused by pollens can obtain complete surcease from their troubles by a trip to sea, where the air is practically pollen free, but the fact is not so often mentioned that many allergic persons not affected by pollens are also able to obtain this relief. I suggest that the explanation may be found in the studies of seasickness recently made by Oriel[13] of the Canadian Pacific Steamship Lines. Briefly summarized, his observations are as follows:

(*a*) Labyrinthine disturbances, if present, do not give rise to nystagmus or to alteration in labyrinthine tests. (*b*) Autosuggestion is not wholly responsible, as there is a distinct metabolic upset found in the prevomiting stage, which is shown by hyperglycemia followed by hypoglycemia, increased ammonia excretion, and the presence of acetone in the urine. (*c*) When vomiting is established there is a very severe acidosis, as indicated by the excretion of ammonia up to 265 mg. per hundred cubic centimeters and the presence of much acetone and diacetic acid in the urine.

(*d*) The administration of dextrose causes diuresis, abolition of acetonuria, and a fall in the ammonia excretion, resulting clinically in the relief of symptoms.

In seasick individuals, then, there is a very pronounced acidosis, and in voyagers not sick there is nevertheless a metabolic disturbance in the direction of acidosis. This acidotic factor in life at sea was long ago recognized by experienced ship's surgeons, who are wont empirically to advise passengers to eat exclusively of vegetables and fruits (i. e., substances with an alkaline ash) if they would avoid becoming sick.

6. *Sojourning at high altitude.* That nearly all allergic persons are free from attacks at altitudes of 4,000 feet or more is an established fact, usually explained by the relative freedom of the air from offending pollens; but how shall one explain the equal degree of relief obtained by individuals whose malady is not pollen-caused; and what to do with the recent interesting statement of Hurst[14] that sufferers sensitive to cats in the lowlands were not affected by cats in the highlands? Again I offer a metabolic rebalancing with a diminution in reserve alkali as the explanation. Henderson[15] has shown that as an adjustment to altitude the blood alkali of people in Colorado is normally lower than in inhabitants of the sea coast. The condition is not acidotic but acapnial; i. e., the loss of carbon dioxide through the augmentation of respiration is compensated by excretion of the excess alkali left in the blood; as a result, the individual does not become acidotic but he does lose alkali. In other words, patients sent to the Rockies or the Alps to obtain relief from asthma are being sent to regions where they undergo a depletion of alkali reserve.

7. *Asthma in the young.* In any of the acute maladies of the very young, acidosis is always to be feared for the reason that the balance is more easily tipped over toward the acid side in youngsters than in their elders. It is worthy of note that in the treatment of very young allergic patients any routine palliative measure is usually more effective than in grown children or adults.

8. *Gastric acidity and allergy.* Numerous observers have incidentally recorded the occurrence of achylia in allergy. Recently, Criep and McElroy[16] have made a deliberate study of the matter and report the presence of achlorhydria and hypo-acidity in a large percentage of allergic conditions. It is interesting to note also that in their studies of urticaria the Walzers[17] found that hive production was accelerated by hypochlorhydria and retarded by hyperchlorhydria. Now there is some disagreement among physiologists as to the exact mechanism of acid production in the stomach, but that the period of active secretion coincides with a period of lessened acidity of the blood is not a controversial matter so far as I am aware; during gastric secretion the acidity of the urine decreases. That is to say, in the normal person during gastric secretion the acid of the blood is drawn upon, but in the allergic person, in whom the supply of acid in the blood is not high because of the hypothetic increase in alkali reserve, there is sometimes hypochlorhydria or even achylia because the blood has so little acid-forming material to spare.

9. *Calcium therapy.* It has long been held that the calcium ion exerts a specific antipermeability effect on the tissues, but this notion has been dealt a severe blow by the studies of Tainter and VanDeventer.[18] Pottenger[19] feels that in allergy there is an overbalance of the parasympathetic nervous influences due in part to an excess of potassium as compared with calcium in the cells, and that, other things being equal, it should be possible to overcome this vagotonia by administering calcium. Now, as a matter of fact, calcium deficiency has not been uniformly found in allergy,[20] and it is apparent that the administration of calcium salts does not in all cases increase the calcium level in the blood.[21] Nevertheless, the administration of calcium salts sometimes causes improvement in any of the allergic diseases. In terms of the present hypothesis I would explain this by saying that calcium therapy is in effect acid therapy.

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[12] Macleod, J. J. R.: *Physiology and Biochemistry in Modern Medicine,* St. Louis, C. V. Mosby Company, 1922, p. 751.

[13] Oriel, G. H.: Lancet **2**: 811 (Oct. 15) 1927.

[14] Hurst, A. F.: Asthma Research, J. A. M. A. **93**: 1898 (Dec. 14) 1929.

[15] Henderson, Yandell: Science **49**: 431, 1919; J. Biol. Chem. **43**: 29 (Aug.) 1920.

[16] Criep, L. H., and McElroy, W. S.: Atopy, Arch. Int. Med. **42**: 865 (Dec.) 1928.

[17] Walzer, A., and Walzer, M.: Am. J. M. Sc. **173**: 279 (Feb.) 1927.

[18] Tainter, M. L., and VanDeventer, William: The Antiedemic Actions of Calcium in Experimental Irritative Edemas, J. A. M. A. **94**: 546 (Feb. 22) 1930.

[19] Pottenger, F. M.: Am. J. M. Sc. **167**: 203 (Feb.) 1924; J. Lab. & Clin. Med. **13**: 913 (July) 1928.

[20] Novak, F. J., Jr., and Hollender, A. R.: Influence of Ultraviolet Irradiation on Calcium Content of Blood Serum, J. A. M. A. **81**: 2003 (Dec. 15) 1923. Sonnenschein, Robert; and Pearlman, S. J.: Calcium and Parathyroid Glands in Relation to Hyperesthetic Rhinitis, ibid. **83**: 1973 (Dec. 20) 1924. Novak, F. J., Jr.; Hollender, A. R.; Sonnenschein, Robert; and Pearlman, S. J.: Calcium and Parathyroid Glands in Relation to Hyperesthetic Rhinitis, ibid. **84**: 534 (Feb. 14) 1925. Brown, G. T., and Hunter, O. B.: Ann. Clin. Med. **4**: 299 (Oct.) 1925.

[21] Salveson, H. A.; Hastings, A. B., and McIntosh, J. F.: J. Biol. Chem. **60**: 327 (June) 1924. Kahn, B. S., and Roe, J. H.: Calcium Absorption From the Intestinal Tract in Human Subjects, J. A. M. A. **86**: 1761 (June 5) 1926.

Haldane and his associates[22] have shown that the oral administration of large doses of calcium chloride increases the acidity of the urine, a large part of the calcium being converted into the relatively insoluble carbonates and phosphates, which are then lost in the feces; the liberated chlorine ion is absorbed and so increases the proportion of fixed acid in the body. Koehler[23] states that 15 Gm. of calcium chloride daily for eight days caused a drop in the carbon dioxide combining power of the blood from 51 to 35 per cent by volume. Howard and Clark[24] have substantiated his observations and have shown that in individuals with fever the efficiency of the drug in lowering the alkali reserve was increased; it is to be remembered that the febrile patient is relatively acidotic. Sollmann[25] says, in speaking of the state of calcium in the plasma: "The soluble and diffusible calcium exists mainly as calcium bicarbonate; and as the solubility of this is limited, the blood calcium cannot rise materially above the normal limit unless the acid-base balance is shifted toward the acid side." Therefore it would seem that whenever calcium is given and a rise in its level in the blood is actually obtained, this has been accomplished only by increasing the relative acidity of the medium. Roe and Kahn[26] have shown that calcium absorption is slower when the drug is given with food, which they explain as being due to the alkalinity of the intestinal tract. Calcium lactate, as well as calcium chloride, is probably also available for decreasing the alkali reserve, for some of it is probably converted into the chloride in the stomach; it has also been shown[27] to be more rapidly absorbed between meals when the intestinal tract is less alkaline, or when lactic acid fermentation within the tract is increased by the administration of large quantities of lactose.

Table 1.—*Relief Obtained by Acid Therapy in Two Hundred and Thirty-Seven Cases of Hay-Fever*

Number of Cases	Relief		Per Cent of Success	Number of Cases	Relief		Per Cent of Success
	Complete	Marked			Complete	Marked	
21	18	2	85	4	1	2	75
10	7	1	80	1	..	1	100
13	5	7	92	1	1	..	100
22	..	..	0	33	..	6	18
2	1	1	100	3	..	3	100
8	1	2	38	6	4	2	100
11	6	2	73	1	..	1	100
6	4	2	100	6	6	..	100
6	3	2	83	10	4	5	90
5	1	2	60	2	1	..	50
2	2	..	100	12	4	5	75
6	4	2	100	5	2	3	100
4	..	2	50	14	3	9	85
10	..	..	0	3	1	1	66
14	8	4	86	6	1	3	66
2	..	..	0	4	..	1	25
2	..	..	0	2	..	1	50

Total number of cases	237
Number of cases obtaining complete or marked relief	160
Percentage obtaining complete or marked relief	67

10. *Whisky and acetylsalicylic acid.* Duke[28] has recently called attention to the value of this combination in asthma. He says: "If enough whisky is given them to make them sleepy and they are made to lie down and go to sleep, that is usually the end of the attack of asthma"; and of acetylsalicylic acid: "Several isolated papers on the usefulness of acetylsalicylate in the treatment of allergic conditions, especially asthma, have been rather sadly overlooked by the medical profession. The intelligent continued employment of acetylsalicylate continued through the night hours ranks second to very few symptomatic therapeutic agents at one's disposal at the present time." The effects of these two drugs are as follows:

Table 2.—*Relief Obtained by Desensitization in 2,185 Cases of Hay-Fever*

Authority	Number of Cases	Relief (in per Cent)			
		Complete	Marked	Slight	None
Rackemann: New England M. J. **84**: 585, 1925	91	9.0	62.0	....	28.0
Vander Veer: Am. J. M. Sc. **164**: 97 (July) 1922	1,744	23.0	49.0	18.0	10.0
Bernton: J. A. M. A. **80**: 1301 (May 5) 1923	56	25.0	40.0	24.0	10.0
Piness: J. A. M. A. **84**: 584 (Feb. 21) 1925	202	29.6	40.0	21.4	9.1
Smith: Mil. Surgeon **61**: 560 (Nov.) 1927	92	10.0	65.0	19.0	6 0
Averages (per cent)		19.3	51.2	20.6	12.6
Average success (per cent)		70.5			
Average failure (per cent)				33.2	

Alcohol (*a*) slightly increases the absorption of the salicylates and (*b*) is quickly absorbed and more than 95 per cent oxidized to carbon dioxide and water, with acetic acid probably as an intermediate stage. This breakdown, which tends to increase the acidity of the tissues, begins in about five minutes but proceeds slowly, the combustion of 1 ounce (30 cc.) of whisky requiring about four hours for completion, during all of which time the acid side is being added to, as shown also by a relative increase in urinary ammonia.

Acetylsalicylic acid: It has long been suspected that the salicylates cause acidosis. Recently Johnson[29] carefully studied the subject and showed that therapeutic doses of either sodium salicylate or acetylsalicylic acid cause definite fixed-acid acidosis; i. e., a decrease in the alkali reserve of the blood with marked respiratory stimulation, so that the p_H remains unchanged. There is also produced an increase in lactic acid in the blood, which Hanzlik[30] is tentatively of the opinion is caused by a decreased functional efficiency of the kidney.

In short, whisky and acetylsalicylic acid cause relative acidosis.

11. *Mineral acid therapy.* For several years I[31] have been advocating the use of the following formula in the treatment of hay-fever:

		Gm. or Cc.	
℞	Nitrohydrochloric acid (*not* the dilute)	18	℥ ivss
	Water to make	120	℥ iv

Label: One teaspoonful in ⅔ glass of water, followed by another glass of water, after meals and again on retiring as near midnight as possible.

I am now able to report the results obtained in 237 cases by 34 physicians, each using the remedy in his practice for the first time, except my own 21 cases, some of which have been treated repeatedly for several years (table 1). Table 2 shows the results at present being obtained with desensitization methods. In table 3 the two methods are compared, and it is seen that the acid therapy is fully as effective as the desensitization.

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[22] Haldane, J. B. S.; Hill, R., and Luck, J. M.: J. Physiol. **57**: 301 (June) 1923.

[23] Koehler, A. E.: J. Biol. Chem. **72**: 99 (March) 1927.

[24] Howard, W. L., and Clark, H. G.: Clin. Med. & Surg., November, 1929. Clark, H. G.; Clark, D. V., and Howard, W. L.: Ibid., July, 1929.

[25] Sollmann, T. H.: Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1926, p. 864.

[26] Roe, J. H., and Kahn, B. S.: Absorption of Calcium from the Intestinal Tracts of Human Subjects, J. A. M. A. **88**: 980 (March 26) 1927.

[27] Bergeim, Olof: J. Biol. Chem. **70**: 29, 38, 47, 51 (Sept.) 1926.

[28] Duke, W. W.: J. Lab. & Clin. Med. **13**: 1012 (Aug.) 1928; Arch. Otolaryng. **8**: 573 (Nov.) 1928.

[29] Johnson, C. C.: The Salicylates, J. A. M. A. **94**: 784 (March 15) 1930.

[30] Hanzlik, P. J., in discussion on Johnson (footnote 29).

[31] Beckman, Harry: Am. J. M. Sc. **174**: 525 (Oct.) 1927; Wisconsin M. J. **27**: 253 (June) 1928; M. J. & Rec. **133**: 9 (July 3) 1929.

Regarding the desensitization table, the figures here shown are admittedly high; i. e., they represent what is being accomplished by expert allergists and by no means by the general practitioner. Also they do not show the 2 or 3 per cent of patients who are actually made worse by the treatments,[32] or the 10 per cent who suffer constitutional reactions,[33] or the more than 50 per cent who have more or less severe local reactions. The treatments must, of course, be begun many weeks before the beginning of the season.

TABLE 3.—*Comparison of Results in Acid and Desensitization Treatment of Hay-Fever*

	Number of Cases	Complete Relief	Marked Relief	Successfully Treated (Marked plus Complete)	No Relief
Acid treatment....	237	37%	30%	67%	33%
Desensitization ...	2,185	19%	51%	70%	30%

As for acid therapy, it may be said that the treatment is begun only when the symptoms appear; there are no reactions; and the figures shown in the table probably represent the minimum that can be accomplished with the acid, for the reason that the amount required for different individuals must surely vary but these patients were all given the same dose, and also because no precautions were taken in any of these cases to guard against the taking of fruits and green vegetables whose alkali ash might completely combat the attempt to lower the alkali reserve with the acid.

SUGGESTIONS FOR FUTURE STUDY

1. Thorough chemical and physical studies of the blood and urine should be made in the large allergy services, with the object of determining the effect of all types of therapy, including desensitization, on the acid-base balance.

2. Ketogenic feeding should be instituted in a carefully controlled series of asthma and hay-fever cases.

3. A study of acid therapy should be undertaken on a large scale. Perhaps the best agents to use will be found to be U. S. P. dilute hydrochloric acid in large doses, ammonium chloride or sodium acid phosphate. I see no reason why nitrohydrochloric acid should be in any way superior to these more familiar substances. In any case the patients should be urged to eat freely of meats, fats and cereals, while green vegetables and fruits should be strictly forbidden because of their alkaline ash.

4. The effect on allergy of all other acidotic states, such as that occurring during exercise and as a part of the picture in severe chronic nephritis and in acute diarrhea, should be studied.

638 Fourth Street.

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32. Caulfeild, A. H. W.: Desensitization of Hay-Fever Patients by Injection and Local Application, J. A. M. A. **79:** 125 (July 8) 1922.

33. Vander Veer, A., Jr.; Cooke, R. A., and Spain, W. C Am. J. M. Sc. **174:** 101 (July) 1927.

The State of Mind of an Infant.—One wonders at times what the state of mind of an infant must be when it finds itself most effusively and unhygienically kissed at one moment by the mother or strangers, and shortly after spanked because of unconscious attempts to exercise its arms or legs or lungs. A strangely inconsistent and unreliable world this must be to a baby, even though it knows nothing of the principles of hygiene or the laws of physiology. It is no wonder that James called this very youthful state of mind a "blooming confusion."—Swift, E. J.: The Psychology of Childhood, New York, D. Appleton & Co., 1930.

Clinical Notes, Suggestions and New Instruments

PIGMENTED MOLE OF THE SOLE OF THE FOOT RESULTING IN MELANOTIC SARCOMA

Arthur D. Kurtz, M.D., Philadelphia

This case is reported, not because of its rarity, but to draw attention again to a fatal ending of an apparently benign process.

REPORT OF CASE

Mrs. A. A., aged 54, white, a housewife, had always enjoyed good health. She weighed about 240 pounds (109 Kg.) and was 5 feet 5 inches (165 cm.) tall. She had never had any serious illness or been pregnant.

Sometime during the month of May, 1929, there developed on the sole of the left foot, about the middle of the arch, a small ulcer, which when first seen was about the size of a dime (18 mm. in diameter) and was surrounded by a pigmented border. It was treated once or twice by a chiropodist, who could not stop the spread of the ulcer; the patient was then referred to me. By this time the ulcer was about 1½ inches (38 mm.) in the transverse diameter and one-half inch (12 mm.) in the longitudinal diameter of the foot; there was a border varying in width from one-fourth to three-fourths inches (6 to 18 mm.) surrounding the ulcer. Early in July, 1929, the entire area was excised; only the skin was found involved and the operative wound healed quickly. The tissue was submitted for examination to Dr. J. H. Clark at the Samaritan Hospital; he returned a diagnosis of pigmented mole with no evidence of any malignant change.

The patient remained comfortable until early in March, 1930, when she felt as though she was walking on a marble. Examination showed a small hard mass in the scar from the previous operation. The mass was globular and about the size of an ordinary cherry.

Under a local anesthetic the tumor was removed; there was no appearance of infiltration of the deeper structures, the tumor peeling easily out from its bed. The entire bed was subjected to thorough fulguration, packed and dressed.

Within one week from the operation the upper lip swelled, became indurated and everted and apparently contained pus. On incision, free bleeding resulted, which caused considerable difficulty in stopping the hemorrhage.

About this time the report from Dr. Louis Tuft concerning the tumor removed showed it to be melanotic sarcoma, and the diagnosis of the lip involvement immediately became patent. It may be noted that the lip increased slowly in size, causing the upper front teeth to become loose and by its size interfered with eating and talking, until two weeks before death, when in an interval of thirty-six hours the swelling completely disappeared leaving a normally flat lip.

The patient was referred to Drs. J. H. Gibbon and W. W. Babcock, who concurred in the diagnosis. She was then referred to Dr. G. C. Bird for heavy dosage of x-rays. This was without any appreciable result, as growths began to appear all over the body and extremities. The scalp and face, except the lip, were not involved until two months ante mortem. The mode of appearance of the secondary growths was of interest: without warning or preliminary signs a black and blue area would appear; in from twenty-four to seventy-two hours a tumor varying in size from a pea to a baseball would make itself shown in the center of the discolored area, when the discoloration would fade, leaving the tumor mass. Some of the tumors would soften and ooze serum and blood.

In September, 1930, the patient's legs became markedly edematous and began oozing serum in several places where no growth was present. The heart showed gradual increase of rate with lowering of the muscle tone, the lungs gave bronchial breathing and in some places fine râles and an obstinate cough developed. October 1, severe pain involving both heels came on, following a week of increased appetite and a feeling of general well being. Twenty-four hours later she became delirious and on October 4 died. Autopsy was not obtainable.

There was little loss of weight during the illness; the patient was just as bulky to handle as when she was in good health. At the time of death there were six tumors in the scalp, two small ones on the forehead, and a large one that had apparently developed almost beneath the right zygoma and caused it to bulge outward. There was no opportunity to count the number on her body and extremities. At no time was there hematemesis, hemoptysis, hematuria or blood in the stools.

While it is known that metastasis in melanotic sarcoma is rapid, it would seem logical that walking on the growth before it was removed might have caused a more rapid spread from intermittent squeezing than would otherwise have occurred.

1501 Diamond Street.

ACUTE HEMORRHAGIC PANCREATITIS: A CASE PRESENTING YELLOW DISCOLORATION AT THE UMBILICUS

Lloyd B. Johnston, M.D., Cincinnati

A moderately obese married woman, aged 37, whom I was asked to see after she had been ill for three days, gave a past history that indicated the presence of flatulence and eructation for four years. For two years preceding the present illness she had had increasingly frequent attacks of nausea, vomiting and upper right abdominal pain which radiated to the right scapular region and for which she was given morphine hypodermics on several occasions. Her present illness began with acute epigastric pain soon followed by nausea and vomiting early in the morning while she was in bed.

When I saw her she appeared very ill and was in marked distress one hour after the administration of a hypodermic dose of morphine. The temperature was 100.2 F., pulse 90, respiration 20. The body was warm but the hands were cold and clammy. There was no jaundice or cyanosis. Respirations were costal in type. The chest observations were negative. The abdomen was of a large type and moderately distended. There was a slight visible fulness of the epigastrium and upper right quadrant. At the umbilicus there was a 1½ inch circle of yellow discoloration resembling the yellow seen after the extravasation of blood or bile. There was a little generalized abdominal rigidity but in the gallbladder region and epigastrium there was extreme rigidity with exquisite tenderness. There was dulness to percussion over the upper right quadrant and to palpation an indefinite sense of a mass. The white blood cell count was 21,400 with 91 per cent of polymorphonuclear leukocytes. The urine contained albumin but no sugar. The preoperative diagnosis was perforation of a purulent gallbladder.

At operation the typical conditions of acute hemorrhagic pancreatitis were observed. There were from 1 to 1.5 liters of markedly blood-tinged peritoneal fluid, extensive fat necroses throughout the upper part of the abdomen and lesser peritoneal cavity, thickening of the base of the omentum, rounding of the liver edge, and thickening of the pancreas, especially of the head. The gallbladder was thickened and densely adherent. Palpation and scooping of the gallbladder, hurriedly done because of the patient's condition, did not reveal any stones. The gallbladder was drained with a soft rubber tube and several small soft cigaret drains were placed about it. The lesser peritoneal cavity was drained with several soft cigaret drains placed through the gastrocolic ligament, and the peritoneum over the pancreas was opened by blunt dissection.

The immediate postoperative condition was critical. The bile drainage lasted only two days, and after ten days several small faceted gallstones were discharged. After four weeks it was necessary, under gas anesthesia, to enlarge the tract into the lesser peritoneal cavity and place a soft rubber tube into it. At the same time the remaining gallbladder stones were removed, after which bile drained freely for several days. The drainage of foul pus and small sloughs from the lesser peritoneal cavity persisted for five weeks longer. Epigastric distress, cramplike epigastric pain radiating into the back, vomiting, anorexia and weakness characterized the patient's convalescence. Two blood transfusions were given. Marked improvement began about nine weeks following the first operation. At the end of four months the patient has been up and about for one month, she is free from pain, her appetite is good, and she is gaining daily in weight and strength. There is occasionally a little watery discharge from the drainage tract.

The immediate postoperative interpretation of the yellow umbilical discoloration was that it was due to the extravasation of pigments from the markedly blood-tinged peritoneal fluid, the color being the terminal blood pigment color change, namely, yellow, rather than blue or blue-green, which might have resulted from the presence of gross blood within the peritoneal cavity or from the digestion of tissues by pancreatic ferments. It is well known that blood or bile within the peritoneal cavity will extravasate its pigments to the surface at the umbilicus. Cullen[1] called attention to the blue umbilicus occurring after the rupture of an ectopic pregnancy. Ransohoff[2] described the yellow discoloration at the umbilicus observed in a case of rupture of the common bile duct.

In acute hemorrhagic pancreatitis, Halsted[3] was the first to describe the cyanosis which, according to Moynihan,[4] may be distributed irregularly over the surface of the abdomen or even of the limbs. In describing his case Halsted graphically represents the sign of cyanosis as "the white print of finger-tips in a slightly cyanosed field just over the site of greatest pain." This cyanosis has subsequently been observed by other writers and it is not to be confused with the type of discoloration being described in this report.

In a review of the literature it is not found that American writers have described true pigment discoloration of the abdominal wall in cases of hemorrhagic pancreatitis. It is described, however, by the English writers Cope,[5] Moynihan[4] and Bailey,[6] the latter two calling it "Grey Turner's sign." The three writers just mentioned do not cite cases of their own. G. Grey Turner[7] in his article describes two cases of acute hemorrhagic pancreatitis, one showing extensive umbilical discoloration and the other showing two large greenish discolored areas in the loins. The interesting description of his first case reads as follows: "In 1912 I was asked to see a big stout woman, 54 years of age, suffering from an acute abdominal illness of three days' duration. I was at once struck by the appearance of the abdominal wall surrounding the umbilicus. In this neighborhood there was an area of discoloration about 6 inches in diameter, of a bluish color, very like the postmortem staining seen over the abdominal wall or the appearance of the skin in a late case of extravasated urine. The area was slightly raised and pitted on pressure. In this case the patient suffered from acute pancreatitis. She lived nine days after operation and postmortem examination disclosed a sloughing pancreas with much fat necrosis." His second case, observed in 1917, was a late case showing two large greenish discolored areas in the loins, and the subsequent autopsy showed direct retroperitoneal extension of fluids from the sloughing pancreas to the loins.

Obviously the umbilical discoloration in Turner's case and the yellow discoloration in my case represent the same pathologic process. It is my opinion that the presence of the yellow discoloration merely represents the extravasation of blood pigments from the bloody peritoneal fluid. If the fluid were more bloody in type, blue or blue-green discoloration undoubtedly would occur. The marked discoloration and edema in Turner's case was probably also associated with some digestion of the tissues by pancreatic ferments. It is quite possible that in some late cases of acute hemorrhagic pancreatitis slight umbilical discoloration has been overlooked or disregarded. Dr. J. S. Spangler, resident surgeon at the Good Samaritan Hospital,

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[1] Cullen, T. S.: Bluish Discoloration of the Umbilicus as a Diagnostic Sign Where Ruptured Ectopic Pregnancy Exists, reprint from Contributions to Medical and Biological Research, dedicated to Sir William Osler, *in Honour of his Seventieth Birthday, July 12, 1919*, by his Pupils and Co-Workers, New York, Paul B. Hoeber.

[2] Ransohoff, Joseph: Rupture of the Common Bile Duct: A New Sign, Southern Surgical and Gynecological Transactions **18**: 48, 1905.

[3] Halsted, W. S.: Retrojection of Bile into the Pancreas, a Cause of Acute Hemorrhagic Pancreatitis, Bull. Johns Hopkins Hosp. **12**: 179, 1901.

[4] Moynihan, Berkeley: Acute Pancreatitis, Ann. Surg. **81**: 132 (Jan.) 1925.

[5] Cope, Zachary: Early Diagnosis of the Acute Abdomen, Humphrey Milford, ed. 3, Oxford University Press, 1925.

[6] Bailey, Hamilton: The Clinical Aspects of Acute Pancreatitis, Brit. M. J. **1**: 367 (Feb. 26) 1927.

[7] Turner, G. G.: Local Discoloration of the Abdominal Wall as a Sign of Acute Pancreatitis, Brit. J. Surg. **7**: 394 (Jan.) 1920.

Cincinnati, has just informed me that he recently observed a small ring of yellow discoloration at the umbilicus in a patient who was not subjected to an operation and in whom the diagnosis of acute hemorrhagic pancreatitis was made at autopsy. It was not agreed by all concerned that the discoloration was real and his observation was not made a matter of record.

The case which I have reported demonstrates that yellow discoloration at the umbilicus may indicate the presence of acute hemorrhagic pancreatitis. As already described, yellow umbilical discoloration also may be present after rupture of the gallbladder or common duct. It is evident that umbilical discoloration in acute hemorrhagic pancreatitis can be present only in cases in which many hours have elapsed after the onset of the acute pathologic process.

707 Race Street.

COCCYGEAL HERNIA

Gustav A. Pagenstecher, M.D., San Antonio, Texas

Herniation of the abdominal viscera is found in every direction. The usual types of hernia are most frequently due to some congenital malformation or weakness.

Hernias through the pelvic floor are uncommon and are due in the main to mechanical injury after birth. In spite of the fact that the greater part of the hydrostatic pressure of the abdominal viscera is exerted on the pelvic floor, the strong but short pelvic fascia, aided by the sacrum, coccyx, pubic rami, sacrosciatic ligament, sacrotuberous ligament, urogenital ligament, levator ani and gluteus maximus muscles are able to hold the viscera back and prevent them from extruding through its vaginal and anal openings, making a hernia in this region one of the rarest of protrusions.

A woman, aged 50, came to me complaining of a pain in the region of the coccyx which was aggravated by sitting, coughing or straining at stool. This pain had been present since the birth of her only child twenty-seven years before.

Physical examination revealed a loose, tender, freely movable coccyx, which caused excruciating pain on manipulation. Otherwise laboratory and physical observations were negative.

A diagnosis of fracture with coccygodynia was made and I recommended surgical removal. She accepted the advice and the coccyx was removed by another surgeon.

Following this removal the wound failed to heal for about three months, all the while discharging a clear amber colored fluid which, from the description, resembled peritoneal fluid, and a large cavity was packed daily. This cavity gradually became smaller and finally healed.

With this history the patient reported to me a second time, about seven months after the removal of the coccyx, complaining of being unable "to sit down," that she had a "hernia," that she was "sitting on her bowels," and that she had to hold her bowels back when at stool.

The patient weighed 155 pounds (70 Kg.). In the region of the sacrum and coccyx was a rounded protruding mass which was freely movable and was easily replaced. Reducing the mass caused pain and discomfort. Coughing or straining brought the mass out. It was covered by a thin layer of healthy skin, was moderately firm, would gurgle when handled, and had all the earmarks of a hernia, about the size of an orange.

The triangular opening through which this hernia came was bounded above by the lower border of the sacrum and laterally by the gluteus maximus and levator ani muscles, and below it ran to a point at the anal orifice.

A finger in the rectum could be pushed in the hernial mass, which was separated from the examining finger by the skin over the posterior wall of the bowel.

OPERATION

With the patient in the prone position, a longitudinal, slightly curved, skin incision lateral to the hernial mass was made from the middle of the sacrum down to the anal orifice. The skin incision brought the rectum and terminal sigmoid into view. Gentle separation of a small mass of scar tissue permitted the posterior culdesac of the peritoneal cavity to be entered, allowing a view of the large bowel and small intestine. The sigmoid was mobile, but it was deemed inadvisable to fix it to the anterior surface of the sacrum at its regular mesenteric attachment. The peritoneum was freed and closed with interrupted plain catgut. The levator ani was next isolated and brought together in the midline with interrupted sutures of chromic catgut number 2. The remnant of the anococcygeal body was isolated and made fast to the lower edge of the coaptated levator ani muscles. This step was done with one finger in the rectum so that the anal orifice would not be occluded. Next, the edge of the pelvic fascia and the sacrotuberous ligament was sufficiently mobilized to be brought together in the midline.

To further strengthen this opening, the gluteus maximus muscle was mobilized from the subcutaneous tissue below and the gluteus medius anteriorly, and brought together in the midline, allowing a sufficient opening for the rectum and anus.

All muscle approximation was made with number 2, forty day double chromic catgut.

Four silkworm tension sutures were passed through the skin, gluteus maximus, levator ani muscles, pelvic fascia and peritoneum and tied over gauze sponges to hold successive layers together and prevent dead space.

The skin was closed with dermal interrupted sutures.

The patient was put to bed on her abdomen and kept there fourteen days. She was catheterized and the bowels were moved by colonic irrigations. She made an uneventful recovery. The hernia was absent after nine months had elapsed.

COMMENT

This hernioplasty was based on the same principle as any other hernia operation in other regions of the body; namely, approximation of muscles to muscles and fascia to fascia to occlude the hernial orifice.

What happened in this case was that a stout patient who had a very wide and deep pelvis had the anococcygeal body stripped from the sacral attachment during the removal of the coccyx.

No case of coccygeal hernia is on record in the present literature.

Medical Arts Building.

SUDDEN DEATH FOLLOWING THE INTRAVENOUS INJECTION OF BISMUTH TARTRATE

Stephen H. Curtis, M.D., Troy, N. Y.

As most of the reports in the literature on the use of bismuth in the treatment of syphilis are favorable, I thought that it might be of interest to report the unfavorable result obtained in this case.

REPORT OF CASE

W. H., aged 35, a mechanic, married, the father of three children, consulted me first in April, 1928, complaining of severe occipital headaches which had been persistent for five years and were relieved temporarily only by taking large quantities of acetanilid preparations. Associated with this was a marked loss of ambition and feeling of languor. His personal history, prior to the onset of the headaches, was negative. He stated that he had not had venereal infection, although at a later date he admitted the occurrence of a chancre twenty years previously. The patient was rather tall, was somewhat emaciated, and had sparse gray hair. His appearance was that of a man of 50. His skin was pale, with a somewhat bluish hue. The teeth were poor and many were missing. The throat appeared normal. The pupillary reflexes were present. The lungs were normal; the heart sounds were clear and slow, 70 beats a minute. There were no irregularities nor adventitious sounds. The blood pressure was 110 systolic and 68 diastolic. The abdominal examination revealed nothing remarkable. There was no evidence of any adenopathy. The knee jerks were present and active. There was no evidence of a Romberg sign. The urinalysis was negative. The blood examination showed a hemoglobin of 70 per cent; red cells, 3,250,000; white cells, 6,200. The smears showed some anisocytosis and a definite achromia. The blood Wassermann reaction was four plus positive with both the alcoholic and the cholesterolized antigens.

Intensive antisyphilitic treatment was begun. Yellow mercuous iodide in one-fourth grain (0.016 Gm.) doses were administered three times daily; 0.6 Gm. of sulpharsphenamine was given intravenously at weekly intervals for ten weeks. There was a complete cessation of the headaches after the third week and a marked improvement in his physical condition. This was followed by ten weekly injections of mercurosal,[1] 0.1 Gm., intravenously. For a period of one month all treatment was stopped. At the end of the month the Wassermann reaction remained four plus positive. The same treatment was repeated for another twenty weeks with a month's rest at the end, when the Wassermann reaction was still four plus positive. There had been no recurrence of symptoms and the improvement had been progressive. For a period of three months no treatment was given.

In October, 1929, the patient reported for examination. He had no complaints and his appearance was good. The blood Wassermann reaction was still four plus positive. He was suspected of being "Wassermann fast" and advised to continue for another three months' period without treatment.

His physical condition had remained the same and so had the Wassermann, four plus positive. In January, 1930, I discussed the condition frankly with the patient, pointing out that while the Wassermann reaction had remained persistently positive he had no evidence of syphilitic activity. Nevertheless, he was not satisfied with the blood remaining positive.

I suggested the intravenous use of bismuth, to which he promptly agreed. Subsequently a course of ten doses of 15 mg. each of bismuth tartrate suspended in 5 cc. of sterile distilled water was given intravenously at weekly intervals. It is interesting to note that within half an hour after the administration of each dose the patient was seized with abdominal pain resulting in one or two watery stools, after which the reaction promptly disappeared and the patient felt quite normal again. The Wassermann test performed one month later showed a plus minus reaction with the plain alcoholic antigen and a two plus positive with the cholesterolized antigen. This was the first change that had been shown in the Wassermann reaction since the initial test before any treatment had been given. The patient was advised to suspend treatment for another month, at the end of which time the Wassermann reaction remained the same as on the previous test.

In June, 1930, another course of bismuth was decided on. The usual dose of 15 mg. of bismuth tartrate suspended in 5 cc. of sterile distilled water was administered intravenously. Immediately the patient became pale and cyanosed, remarked that everything was getting black, and lapsed into unconsciousness. The breathing became stuporous and labored, then slow and irregular. There was no pulse perceptible at the wrist. The heart was slow and very feeble. The blood pressure was so low as to be impossible to record. One cubic centimeter of epinephrine hydrochloride was administered directly into the ventricular wall. There was no response. The patient had died. This all took place within a period of less than five minutes. There had apparently been a complete vasomotor failure.

Prior to the administration of this last dose of bismuth, the patient had completed his usual day's work and had expressed himself as "feeling fine." It appears to me that this dose of bismuth had produced a sudden paralysis of the vasomotor system resulting in a complete collapse.

COMMENT

I have used bismuth with the same technic in ten other so-called Wassermann fast cases, eight of which showed reactions to a lesser degree and two were completely negative in the Wassermann test. In none of these cases has there been any manifestation of a reaction whatever, systematically. This patient may have had an idiosyncrasy toward bismuth although the only suggestion of it in ten doses given previously had been the slight intestinal disturbance. The size of the doses had all been the same and there had been an interval of one month with no treatment between the tenth and the last dose.

Unfortunately, a necropsy was not obtainable.

80 First Street.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. Puckner, Secretary.

DEXTROSE (See New and Nonofficial Remedies, 1930, p. 245).

The following dosage forms have been accepted:

Ampoule Sterile Solution Dextrose, U. S. P., 5 Gm., 10 cc.: Each ampule contains dextrose, U. S. P., 5 Gm., in distilled water to make 10 cc.

Prepared by the E. S. Miller Laboratories, Inc., Los Angeles.

Ampoule Sterile Solution Dextrose, U. S. P., 10 Gm., 20 cc.: Each ampule contains dextrose, U. S. P., 10 Gm., in distilled water to make 20 cc.

Prepared by the E. S. Miller Laboratories, Inc., Los Angeles.

Ampoule Sterile Solution Dextrose, U. S. P., 25 Gm., 50 cc.: Each ampule contains dextrose, U. S. P., 25 Gm., in distilled water to make 50 cc.

Prepared by the E. S. Miller Laboratories, Inc., Los Angeles.

Dextrose (d-Glucose) Unbuffered and Without Preservative, 10 Gm., 20 cc. Ampul: Each ampule contains dextrose, U. S. P., 10 Gm., in distilled water to make 20 cc.

Prepared by the H. K. Mulford Co., Philadelphia.

Dextrose (d-Glucose) Unbuffered and Without Preservative, 25 Gm., 50 cc. Ampul: Each ampule contains dextrose, U. S. P., 25 Gm., in distilled water to make 50 cc.; accompanied by an ampule of 2 cc. of a buffer solution, each cubic centimeter containing disodium hydrogen phosphate ($Na_2HPO_4.2\,H_2O$) 0.0745 Gm. and potassium biphosphate (KH_2PO_4) 0.0122 Gm.

Prepared by the H. K. Mulford Co., Philadelphia.

Dextrose (d-Glucose) Unbuffered and Without Preservative, 25 Gm., 50 cc. Double End Vial: Each double end vial contains dextrose, U. S. P., 25 Gm., in distilled water to make 50 cc.; accompanied by an ampule of 2 cc. of a buffer solution, each cubic centimeter containing disodium hydrogen phosphate ($Na_2HPO_4.2\,H_2O$) 0.0745 Gm. and potassium biphosphate (KH_2PO_4) 0.0122 Gm.

Prepared by the H. K. Mulford Co., Philadelphia.

Dextrose (d-Glucose) Unbuffered and Without Preservative, 50 Gm., 100 cc. Ampul: Each ampule contains dextrose, U. S. P., 50 Gm., in distilled water to make 100 cc.; accompanied by an ampule of 4 cc. of a buffer solution each cubic centimeter containing disodium hydrogen phosphate ($Na_2HPO_4.2\,H_2O$) 0.0745 Gm. and potassium biphosphate (KH_2PO_4) 0.0122 Gm.

Prepared by the H. K. Mulford Co., Philadelphia.

VENTRICULIN.—Desiccated, defatted, hog stomach.—It is assayed clinically by observation of the reticulocyte response, the standard being an increase of red blood cells at the rate of about one hundred thousand cells per cubic millimeter per week when the product is administered to patients suffering from pernicious anemia.

Actions and Uses.—Stomach tissue of animals has been shown to contain a principle capable of stimulating the bone marrow to form immature red cells (reticulocytes) in large numbers during the first ten to fifteen days of its oral administration (Sturgis and Isaacs, The Journal, Sept. 7, 1929; Sharp, ibid.). The reticulocyte production reaches a peak at some point during this initial period of treatment from seven to twelve days—after which a recession takes place and normal red blood cells appear in the blood stream in greatly increased numbers. Hemoglobin and thrombocytes gradually attain their normal relation to the red blood cells with adequate doses. In the treatment of pernicious anemia the daily reticulocyte count is the best method of detecting improvement in the patient during the first two weeks. When, during the first ten to fifteen days' treatment with ventriculin, a satisfactory rise in reticulocytes occurs, this is evidence that effective and progressive blood regeneration is taking place.

Dosage.—The administration of ventriculin may be instituted on a conclusive diagnosis of primary anemia: from 20 to 30 Gm. (2 to 3 vials) are administered daily, suspended in a half-glassful of water or fruit juice. When the red blood cell count has reached a satisfactory level, 10 Gm. (1 vial) is sufficient as a maintenance dose. In severe relapses a dosage of from 20 to 30 Gm. (2 to 3 vials) is indicated.

Manufactured by Parke, Davis & Co., Detroit. U. S. patent applied for. U. S. trademark number 270,811.

Ventriculin is a granular substance, practically insoluble in water and having a faint odor and slight taste.

To prepare ventriculin, fresh, whole stomachs from healthy hogs are freed from extraneous fat, ground and dried in a vacuum at a temperature not exceeding 65 C. The dried material is then defatted by extraction with purified benzine. The defatted material is dried without further application of heat, ground and milled to coarse powder. A representative sample of each lot is tested on known cases of pernicious anemia under the supervision of the Henry Simpson Memorial Institute, University of Michigan, Ann Arbor, Mich. No product is released for use until approved by the Simpson Memorial Institute.

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[1] Mercurosal (N. N. R.) is disodiumhydroxymercurisalicyloxyacetate and contains from 43 to 43.8 per cent of mercury in organic combination.

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SATURDAY, NOVEMBER 22, 1930

MICROBIC DISSOCIATION

Changes in morphology and biologic characteristics of bacteria have recently been the subject of controversy among bacteriologists. Hadley,[1] in a monograph entitled "Microbic Dissociation," has comprehensively reviewed the investigations in this field. In 1877 Nägeli,[2] representing the prevalent opinions of the time, declared in his "Lehrbuch" that fission fungi came from a single type of cell which appeared in diverse forms and possessed a variety of biologic characteristics. About the same time Cohn [3] presented a system of bacterial differentiation based solely on morphology and biologic characteristics. This specificity of bacteria was passed on by Koch and was generally accepted as law until the past decade, although Neisser [4] in 1906, Massini [5] in 1907 and a few others showed that some bacteria may change both form and activities. Hadley found that many observations of bacterial changes made during the course of other studies and reported in the literature were generally regarded by observers as contaminants. Only in recent years have bacteriologists openly considered the possibility of anything more than minor changes in the form of bacteria. They have now begun to attack the problem seriously and much is being written.

Two main schools of thought dominate the question. The radicals Löhnis, Mellon and Enderlein, three of the leading proponents, maintain that complete changes in form and character may take place. Mellon [6] claims that he has been able to transform diphtheroids into various other organisms, including streptococci. Later he [7] found that involution forms could be made to grow under proper conditions. His work led him to conclude, as did Enderlein [8] and Löhnis,[9] that these forms may represent part of a sexual cycle which bacteria undergo. Mellon believes that bacteria can be regarded as "fungi imperfecti." True, his work is only just now being regarded seriously. The conservative group, to which most bacteriologists belong, maintain that almost all organisms can show variant forms under proper conditions, but they have not entirely accepted the views of Mellon. They are content with describing two main forms of each organism, the S, or "normal," and the R, or mutant, form. They regard the S type as growing fairly well on agar, the colonies generally being smooth and small, capsulated, active in motile species, and representing the "normal" morphology, while the R form generally grows expansively on agar, and the colonies are rough, irregular and flat, are nonmotile in the motile species, and have a tendency to form short rods and cocci. They contend that the R form is more common in convalescents, in carriers and in chronic diseases, and is more resistant to aging and to bacteriophage. They declare that the R form is more susceptible to phagocytosis, while serum against S may force the "normal" S into the R form. This last may explain the action of immune serum in certain diseases. Hadley declares that in the dissociative process the R form is an indirect rather than a direct product of the S form. He finds that the basic factor which incites dissociative reactions is any condition unfavorable to the growth of the S type. He cites evidence indicating that virulence is not evenly distributed through all stages of growth but is commonly restricted to the S form. He believes that the increase of virulence is dependent on the increase of the S over the R form. It has been determined that profound serologic changes take place in the transformation of the S to the R type and that there is not only a loss of old antigenic power but also a gain of new antigenic substance. Hadley believes that the frequent serologic discrepancies observed are due to dissociative reactions. He cites investigations showing that only certain stages of organisms possess immunizing power. He warns against the possibility that organisms, if taken into the body, may by dissociation become virulent. He suggests also that the so-called filtrable virus may represent an ultramicroscopic and virulent dissociate of some common unsuspected avirulent organism. Marked changes in the tubercle bacillus have been found by many workers, one stage of the cycle being a filtrable virus. Ninni [10] was able to isolate acid fast organisms from the lymph glands of animals injected with the filtrate of tubercle bacilli. Hadley believes that the rickettsia bodies will be explained on the basis of microbic dissociation. Investigators find that the reversion of R back to the S form does not take place with the ease with which the S becomes the R form, and because of this some hold that there is a true mutation from S to R and that R represents a new organism. Hadley believes that it is

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1. Hadley, Philip: Microbic Dissociation, J. Infect. Dis. **40:** 1 (Jan.) 1927.
2. Von Nägeli, C.: Untersuchungen über die niederen Pilze und ihre Beziehung zu den Infektionskrankheiten und der Gesundheitspflege, cited by Hadley.
3. Cohn, F.: Beiträge zur Biologie der Pflanzen, Breslau **1:** 127, 1875.
4. Neisser, M.: Centralbl. f. Bakteriol. **38:** 98, 1906.
5. Massini, R.: Arch. f. Hyg. **61:** 250, 1907.
6. Mellon, R. R.: J. Bact. **2:** 81, 1917.
7. Mellon, R. R.: J. Bact. **10:** 481, 1925.
8. Enderlein, G.: Bakterien-Cyclogenie, Berlin, 1925.
9. Löhnis, F.: Mém. nat. Acad. sc. **16:** 252, 1921.
10. Ninni, C.: Compt. rend. Acad. d. sc. **190:** 597 (March 3) 1930.

premature to accept this phenomenon as a mutation until all possible changes in environment have been tried. He suggests that the word mutation be kept out of the vocabulary of bacteriologists until all organisms have been studied to the fullest to determine all possible changes an organism can undergo. He[11] cites evidence which leads him to believe that bacteriophage is part of dissociation and that lytic areas represent transitory secondary colonies, which in turn form tertiary colonies. Bordet and d'Herelle regard these tertiary colonies as resistant secondary colonies.

The revolutionary advances made in the study of microbic dissociation in the past decade are not generally known to clinicians. It would seem as if the clinician must wait for the bacteriologist to define the limits of variability of various organisms, the relationship of one organism to another and the changes if any that are incited in an organism by the host, before attempts to advance therapeutically can be made. Studies in microbic dissociation may clear up many ill defined clinical relationships between various organisms: whether the colon-typhoid group comes from a common ancestor, whether under certain conditions they are transformed from one type of organism into another, and why *Streptococcus scarlatinae* will sometimes produce only sore throats in the experimental production of scarlet fever. Enderlein as well as Hadley has suggested that therapeutic endeavor in the future may not be concerned with the attempt to kill organisms in the body but to try to force them into a nonvirulent stage. It would seem that the teaching of bacteriology in the future must point out the possibilities in this field. Mellon's contention that bacterial changes represent part of a sexual cycle would seem logical since all other types of life show this phenomenon. Perhaps, as Hadley has suggested, out of the confusion of rods changing to cocci will be evolved new laws to show that these changes follow a logical order.

HUMAN MILK FLOW

Despite the advances that have been made in recent decades in the practical aspects of the artificial feeding of infants, pediatric advice still stresses the preference for breast milk whenever conditions make its use possible. When Mrs. Rose[12] wrote "Happy the baby who enjoys his inalienable right to Nature's food supply—his own mother's milk!" she added that his chances of a long and healthy life are immensely greater than those of the unfortunate child who has to be artificially fed. In case of misfortune depriving him of his natural food supply, the best substitute is the milk of some other healthy woman with a baby of approximately the same age. Indeed, the breast-fed baby has a better chance not only of surviving the perilous first year but of growing to manhood as well.

Even the partial acceptance of such views makes it imperative to devote much attention to the problems of human milk flow—a subject that has received far less scientific study than it obviously deserves, owing to indifference and misguided sentiment. It has been pointed out that many rational theories have been advanced on the subject but that it is not known whether nervous, chemical or glandular agents operate to start the flow of milk.[13] Even seemingly convincing experimental evidence is contradictory concerning the causes of the hypertrophy of the mammary glands during pregnancy and their secretory activity immediately after parturition. There is a general opinion that nervous shock, certain psychic states caused by the presence or absence of the suckling reflex, and the emotional status and environment of the mother affect the flow of milk. The limitations of our knowledge are further indicated by the reminder that the increased circulation of blood after the discharge of the fetus has been considered to be one factor in the initiation and continuation of milk flow, while the presence in the blood of particular chemical excitants that favor milk formation is another.[13] The evidence concerning the influence of chemical excitants in the blood is, we are told, the more convincing, but it is impossible to say whether these hormones or galactagogues have their source in the placenta, in the fetus or in certain glands of internal secretion.

The elaborate investigation of Macy and her collaborators at the Children's Hospital of Michigan in Detroit have disposed of at least one debated feature of human lactation. As part of the activities of a mother's milk bureau, the routine technic consisted in securing the entire production through expression of the milk from the breasts. In most earlier studies the records for milk yield have been secured by weighing the babies before and after nursing and quantitatively expressing the remainder of the milk. In the Detroit studies the suckling stimulus was entirely absent after the first few days post partum, since the babies were not allowed to nurse. The total milk supply was expressed by hand, the babies receiving their own mothers' milk by bottle. That is, the psychic effect of the suckling reflex of the child did not influence the types of milk production curves obtained in this investigation. Nevertheless, large yields of milk were secured over long periods. For example, the average daily output of milk from the sixth week through the fourteenth month was 2,602 cc. for one mother in her first lactation period and 3,134 cc. in her second; 2,366 cc. for another person, and 1,419 cc. for a third. These are substantial yields even though they do not approach Kollmann's[14] record of a woman who produced as much as 5,950 Gm. of milk in one day and was able to nurse from one to seven babies throughout fifty-one weeks of lactation. Evidently the suckling reflex of the child is not necessary for the stimulation and continuance of heavy milk flow in all women.

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[11] Hadley, Philip: J. Infect. Dis. **42:** 263 (April) 1928.

[12] Rose, Mary Swartz: Feeding the Family, New York, Macmillan Company, 1929.

[13] Macy, Icie G.; Hunscher, Helen A.; Donelson, Eva; and Nims, Betty: Human Milk Flow, Am. J. Dis. Child. **39:** 1186 (June) 1930.

[14] Kollmann, A.: Beitrag zur Frage der Leistungsfähigkeit der weiblichen Brustdruse, Arch. f. Kinderh. **80:** 81, 1927.

The Detroit studies confirm the evidence that there are significant variations in the volume output of milk of individual women from hour to hour and from day to day. Such fluctuations, we are assured, may have an appreciable influence on the nurturing of the average breast-fed infant. There is a definite individual functional capacity for producing milk at a given time in the lactation period. It has repeatedly been stated that within limits the quantity of milk secreted by physiologically normal mammary glands adjusts itself to the demand. The removal of milk from the breasts encourages secretion, whereas the accumulation of milk discourages it. When a greater demand is placed on the mammary glands, the quantity of milk output is increased.[15] The Detroit observations show that frequent and thorough stripping of the breasts seems to be effective in producing notable increases in the output of milk at any stage of lactation. This is important for the increasing number of lactating women who are disposing of surplus milk in the modern milk bureaus.

HEXYLRESORCINOL AS AN ASCARICIDE

Among the larger intestinal parasites of man, the attention paid in medicine to all the roundworms other than the hookworm seems to be relatively slight. This is particularly true of the eelworm, *Ascaris,* undoubtedly the most important of the lesser group. Ascariasis in man is not a rarity. The eelworms are among the most frequent human parasites. According to Chandler [16] they occur in all parts of the world and are found, especially in children, in the majority of temperate countries, even in countries as far north as Greenland and Finland. In the tropics they are abundant and are almost universally present in children, each individual harboring anywhere from two or three to several hundred worms.

Even though *Ascaris* does not have the reputation of being a particularly dangerous invader, it doubtless shares with other intestinal worms the menace of affording an unsuspected portal of entry to bacteria and protozoa. Chandler has recalled the admonition of Shipley that the intestinal worms play a part within our bodies similar to that played by blood-sucking arthropods on our skins, except that they are more dangerous since, after all, only a relatively small percentage of biting insects have their probosces soiled by organisms pathogenic to man, whereas the intestinal worms are constantly accompanied by bacteria, such as *Bacillus coli,* which are capable of becoming pathogenic if they gain access to the deeper tissues, as they are able to do through the injuries made by parasitic worms.

The traditional drug for expelling *Ascaris* has been santonin, though more recently the oil of chenopodium has come into vogue. The problem of an effective vermifuge is complicated by many factors. Foremost is freedom from danger of toxicity to the host. Another essential is that the worms shall actually be killed, not merely anesthetized or irritated so that they migrate within the body and produce more serious invasions of tissues. Strangely enough, intestinal parasites are somewhat variable in their reactions to drugs. According to Lamson, Minot and Robbins,[17] carbon tetrachloride and tetrachlorethylene, which are both efficient against hookworm, are relatively ineffective against ascarids and may cause dangerous migration of these parasites. Occasional deaths have followed the classic vermifuges. Lamson, Ward and Brown,[18] working at Vanderbilt University School of Medicine in Nashville under the auspices of the International Health Division of the Rockefeller Foundation, believe that they have discovered an effective and safe ascaricide in hexylresorcinol. This drug possesses marked germicidal properties and is employed for the treatment of urinary infections. According to New and Nonofficial Remedies,[19] the drug appears to be efficient against infections due to *Streptococcus anhemolyticus* and *Bacillus pyocyaneus,* but to be less efficient in the treatment of infections due to *Bacillus coli.* Hexylresorcinol is stated to be relatively nontoxic when administered by mouth. It is excreted by the kidneys, being largely decomposed but imparting definite germicidal properties to the urine.

Hexylresorcinol has irritant properties. They are not regarded as a contraindication for its occasional use and they are transitory in effect. The Nashville pharmacologists feel justified, after extensive preliminary studies on animals and man, in suggesting crystalline hexylresorcinol as an ascaricide in spite of its irritant properties, because they feel that it is exceptionally effective; it kills rather than anesthetizes the parasites, thus reducing the danger of migration; its irritant action, which should theoretically be merely superficial, has been shown by experiment to be so; and, finally, because hundreds of patients have taken this substance in olive oil solution as a urinary antiseptic in much greater amounts than is suggested for ascariasis without known complications. When given as an ascaricide, it should be taken on an empty stomach to prevent the possibility of its combination with the proteins of the food. Lamson and his co-workers record the general belief that one must have a vermifuge that will remove all the worms in a single dose. This is important when elaborate preparations for treatment must be made and when there is danger of intoxication. If, however, as is the case with hexylresorcinol, no preparation of the patient is necessary except to take the drug in the morning on an empty stomach and to wait an hour or so before eating to let the drug come in better contact with the parasites, there is no reason, according to Lamson, Ward and Brown, why the drug should not be repeated if necessary. Therapeutic research of this character obviously requires confirmation on a large scale for final acceptance.

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[15] Moore, C. U.: Nutrition of Mother and Child, Philadelphia, J. B. Lippincott Company, 1923.

[16] Chandler, A. C.: Animal Parasites and Human Disease, New York, John Wiley and Sons, 1922.

[17] Lamson, P. D.; Minot, A. S., and Robbins, B. H.: The Prevention and Treatment of Carbon Tetrachloride Intoxication, J. A. M. A. **90**: 345 (Feb. 4) 1928.

[18] Lamson, P. D.; Ward, Charlotte B., and Brown, H. W.: An Effective Ascaricide—Hexylresorcinol, Proc. Soc. Exper. Biol. & Med. **27**: 1017 (June) 1930.

[19] New and Nonofficial Remedies, Chicago, American Medical Association, 1930, p. 328.

Current Comment

SECRETION OF ALIEN PROTEINS IN HUMAN MILK

Infants fed exclusively on breast milk at times develop eczema, urticaria, asthma and other anaphylactic symptoms. The withdrawal of certain articles of food from the mother's diet often leads to cessation of these symptoms, eggs being the most common exciting agent. In a few cases skin tests have been made showing the infant's hypersensitivity to maternal milk, but attempts to identify the allergic excitant in this milk have thus far given negative results. Stuart, for example, in 1923, could not demonstrate egg proteins in apparently toxic human milk by the most delicate anaphylactic method at his command. Pediatricians, therefore, have been forced to consider the possibility that the toxic agent is some individual metabolic or secretory abnormality in human milk, the egg diet being responsible for this maternal biochemical perversion. Since Stuart's publication, however, newer and more delicate methods of allergic research have been introduced, particularly the method of local protein assay championed by Coca and Grove.[1] In the Coca-Grove test, 0.1 cc. of human [sic] anti-egg serum is injected intradermally into a dozen or more widely separated skin sites in a normal individual. Forty-eight hours later, graded doses of highly dilute egg white are injected into the same areas. Positive local skin reactions are at times demonstrable with egg dilutions as high as 1 : 1,000,000,000, a specific protein test a thousand times more delicate than the sensitization test of guinea-pig anaphylaxis. Applying this quantitative technic to human milk, Dr. H. H. Donnally,[2] of the Department of Pediatrics, George Washington University, currently reports that after an egg diet normal human whey often contains as much as one part in a million of apparently unaltered egg white. This represents in the neighborhood of a milligram of egg protein in each daily infant feeding, an amount fully sufficient to account for allergic symptoms. If Donnally's work is confirmed and found equally applicable to other food proteins, there is no necessity of assuming metabolic or secretory abnormalities in nursing mothers in order to account for occasional eczemas, urticarias and other food allergies in breast-fed infants.

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[1] Coca, A. F., and Grove, E. F.: A Study of the Atopic Reagins, J. Immunol. **10:** 445 (March) 1925.

[2] Donnally, H. H.: The Question of the Elimination of Foreign Protein (Egg White) in Woman's Milk, J. Immunol. **19:** 15 (July) 1930.

COMPOSITION OF AQUEOUS HUMOR

Before practical use can be made of scientific data, the available facts must be established and classified. The great value of biochemical analyses in medicine at present lies in the enormous mass of information on the normal organism on which is established a base line from which the deviations are determined and interpreted. The recent report of Krause and Yudkin[1] on the composition of the aqueous humor of the eye emphasizes the fact that few tissues and fluids of the body have escaped investigation by the biochemist. These investigators point out that the make-up of the aqueous humor of the dog is in general similar to that of the ox, pig and horse and also to the dialysate of blood serum. Furthermore, a comparison of the composition of the spinal fluid and aqueous humor on the basis of determinations of a relatively few constituents leads to the conclusion that the two fluids have practically the same constitution. The composition of cerebrospinal fluid in turn closely approximates that of the plasma except for the protein. These studies indicate that under normal conditions the fluid in the anterior chamber of the eye is essentially in chemical equilibrium with the plasma, the nonprotein constituents passing more or less freely through the limiting membranes of the blood vessels, and a definite ratio existing between the concentrations in the plasma and in the aqueous humor. A similar conclusion has been reached by Arnold and Mendel[2] with reference to the relative compositions of blood and lymph. The studies on the ocular fluid indicate that its function is physical and nutritive. Its physiologic value does not lie in peculiar chemical activity such as is the case, for instance, in the gastric juice.

VIOSTEROL

It has repeatedly been established that the product resulting from the irradiation of ergosterol with ultraviolet rays may give rise to toxic manifestations when enormous doses are administered. Such amounts represent many hundred times those that bring about cures of rickets.[3] Although the chemical nature of ergosterol is well established, the nature of its irradiation derivatives or isomers that constitute the equivalent of vitamin D remains to be elucidated. The phenomena that have been described as hypervitaminosis with vitamin D are varied in character. Hypercalcemia is a prominent symptom; and it can be produced in parathyroidectomized animals, thus showing that in all probability the antirachitic factor does not act through the intermediation of the parathyroid glands.[4] Holtz and Schreiber[5] of Göttingen have recently reached the conclusion that irradiation of ergosterol produces a number of distinct substances. One is the antirachitic factor, perhaps vitamin D proper; another is a separate component producing calcification and designated by Heubner as the "calcinose" factor. The two effects, antirachitic and toxic, can be separated; or at least one can be destroyed while the other remains intact. If these observations prove to be correct, they may lead to a desirable purification of viosterol so as to eliminate or diminish the "toxic" features of its action.

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[1] Krause, A. C., and Yudkin, A. M.: J. Biol. Chem. **88:** 471 (Sept.) 1930.

[2] Arnold, R. M., and Mendel, L. B.: J. Biol. Chem. **72:** 189 (March) 1927.

[3] Hypervitaminosis with Vitamin D, editorial, J. A. M. A. **95:** 1023 (Oct 4) 1930.

[4] Jones, J. H.; Rapoport, Milton; and Hoges, H. L.: The Effect of Irradiated Ergosterol on Thyroparathyroidectomized Dogs, J. Biol. Chem. **86:** 267 (March) 1930.

[5] Holtz, F., and Schreiber, Emma: Einige weitere physiologische Erfahrungen uber das bestrahlte Ergosterin und seine Umwandlungsprodukte, Ztschr. f. physiol. Chem. **191:** 1 (Sept.) 1930.

Association News

THE PHILADELPHIA SESSION

Scientific Exhibit: Announcement of Exhibit by Section on Radiology

The Section on Radiology has appointed the following members as the Committee on Section Exhibit: Byron H. Jackson, M.D., Scranton, Pa.; Eugene P. Pendergrass, M.D., Philadelphia, and Henry K. Pancoast, M.D., Philadelphia, chairman.

The committee again points out that one of the functions of the Section on Radiology is to cooperate in educational matters. One of the ways in which this educational program can be fostered is by the members of the Section on Radiology arranging a well selected exhibit for the Philadelphia Session. The committee, therefore, invites applications for exhibits of investigative character dealing with the subject of radiology.

The radiologic exhibit may be in the form of original films or reduced transparencies. Prints, provided they are suitably mounted on cardboard, are also desirable. In cases of transparencies or of prints, emphasis should be placed on the use of amply printed explanatory legends; a third dimensional exhibit correlating the films is particularly impressive. As in the case of all exhibits, personal demonstration is required.

The section exhibit of the roentgenograms may be used to illustrate subjects dealt with in papers read before the section.

The Committee on Scientific Exhibit has made arrangements to furnish illuminating boxes for the display of films.

Members of this specialty are requested to take inventory of materials that might illustrate phases of radiology and communicate with the committee chairman, Dr. Henry K. Pancoast, X-Ray Laboratory, University Hospital, Philadelphia, Pa. All applications must be made on the regular application form, which is the one required by the A. M. A. Committee on Scientific Exhibit. A circular letter giving information concerning this exhibit, together with the usual application blank, will be mailed to those who have registered in the section during the last three years. Those who have not registered in this section but who are interested in such an exhibit may obtain a circular letter and application blank by sending the request to Dr. Pancoast. Applications should be filed not later than Feb. 10, 1931, with Dr. Pancoast.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, 10:30 on Thursday and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

November 24. Rural Health Work.
November 25. Mental Hygiene—An Important Public Health Problem.
November 29. Preventing Disease of the Teeth and Gums.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

November 24. How's the Baby?
November 25. What's Clean or Unclean?
November 26. The Sore Throat Danger Signal.
November 28. How's the Baby?
November 29. Wash Your Hands.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Licenses Suspended and Revoked.—At the meeting of the California State Board of Medical Examiners in Sacramento, October 21-22, the licenses of the following physicians were disposed of as follows:

Dr. Robert H. MacLauchlan, San Francisco, suspended for one year for hiding and abetting an unlicensed practitioner.
Dr. John R. Leadsworth, Los Angeles, suspended for one year for aiding and abetting an unlicensed practitioner.
Dr. Clarence E. Edwords, San Francisco, revoked, following an illegal operation.
Dr. Walter C. Hoyt, Gridley, revoked for habitual intemperance.
Dr. Thomas O. Greig, Berkeley, placed on probation for five years without a federal alcohol permit.

University News.—Among the recent gifts to the University of California were $10,000 from J. H. Mackenzie, San Francisco, for the investigation and treatment of diseases of the nervous system; $5,000, anonymously, for the support of investigations on infantile paralysis in the Hooper Foundation; $2,000 from the estate of John Fryer and from his sons and daughters to establish a John Fryer Chinese Library Fund; $2,500 from Dudley Cates, for research in neurologic surgery, and $1,000 from the National Canners' Association toward the salary of Prof. J. C. Geiger of the Hooper Foundation.——At the semiannual alumni day of the University of California Medical School, San Francisco, November 21, Dr. Harold Brunn, among others, spoke on "Newer Treatment of Atelectasis"; Dr. Howard W. Stephens, "Injuries of the Chest"; Dr. George K. Rhodes, "Spinal Anesthesia," and Dr. Harry M. Blackfield, "Skeletal Immobilization of Fractures of the Leg."

CONNECTICUT

Health Surveys of Cities.—Health surveys are being conducted by the Yale University School of Medicine in four cities and towns, namely, Winsted, Stratford, West Hartford and Haddam, at the request of each community. Public health inventories have already been made in Greenwich, North Haven, Westport, Middletown, Hartford, Ansonia, New Haven, Hamden, Manchester and Danbury. Under the terms of its endowment, the department of public health at the Yale University is charged with the obligation to promote the general cause of public health in the state and is subject to service calls from any community in making a survey and inaugurating improvement measures needed. The services are free, but to insure successful conclusions the department requires that the community shall cooperate in forming a permanent advisory committee in carrying out the recommendations of the survey and that the community pay traveling expenses of the staff and the cost of printing reports. The work is done with the full cooperation of the state health agencies.

GEORGIA

Society News.—"Trichomonas Vaginalis and Vaginitis" was the subject of a paper by Dr. Walter R. Holmes, Jr., delivered before the Fulton County Medical Society, Atlanta, November 6, and Dr. Claude S. Beck, Cleveland, spoke on "Pneumocardiac Tamponade in Relation to Pneumothorax." ——The Burke County Medical Society was addressed, November 6, by Dr. James M. Byne, Jr., Augusta, on "Coronary Thrombosis."

ILLINOIS

Society News.—The Rock Island County Medical Society was addressed, November 11, by Dr. George de Tarnowsky, Chicago, on "Surgical Management of Carcinoma of the Colon." ——Dr. Hugh A. McGuigan, Chicago, addressed the Grundy County Medical Society, November 12, on "Digitalis Therapy."——Dr. Stanley S. Burns, St. Louis, addressed the Williamson County Medical Society at Marion, November 18, on "Diagnosis and the Importance of Focal Infection in the Nose and Throat."——Dr. Lesley E. Wallace, Thebes, addressed the Alexander County Medical Society at Cairo, October 18, on "Coronary Thrombosis." ——"Arterial Hypertension" was the subject of Dr. Frank Buckmaster, Effingham, before the Effingham County Medical Society, October 30.

Chicago

Society News.—The Chicago Roentgen Society was addressed, November 12, by Drs. Henry W. Meyerding, Rochester, Minn., on "Bone Tumors"; Adolph Hartung, "Fibrocystic Disease"; Fremont T. A. Chandler, "Lesions of the Isthmus of the Lower Lumbar Vertebra," and Dallas B. Phemister, "Roentgen Changes in the Head of the Femur in Intracapsular Fractures."——Dr. Harry J. Corper, Denver, addressed the Chicago Tuberculosis Society, November 13, on "The Tubercle Bacillus—Experimental Studies."——Among others, Dr. Arthur Weil addressed the Chicago Pathological Society, November 10, on "Silver Impregnation of Gliomas with Davenport's Method."——Dr. Ramon Castroviejo gave a demonstration of clinical cases; scheme of diplopia; demonstration of Lacarrere's diaphragm of double slit before the Chicago Ophthalmological Society, November 17. Hugo Fisher, D.D.S., Drs. Castroviejo, Edward White and Willis S. Lemon, Rochester, Minn., conducted a symposium on the etiology of uveitis.——Dr. John B. Deaver, Philadelphia, addressed the Chicago Medical Society, November 12, on "Bleeding Peptic Ulcer."

INDIANA

Medical Reminiscences.—The November meeting of the Madison County Medical Society featured reminiscences of early day practice. Each member was asked to bring a physician who is 70 years old or older as a guest of the society. The society records date back to 1884 and one physician, Dr. George Chittenden, stated in the minutes that he had been a member since 1875. Drs. William M. Garretson, Perkinsville, Lot E. Alexander, Pendleton, and Orlando W. Brownback are the only members now living who were also members in 1890.

IOWA

Society News.—The Northwest Iowa Medical Society was addressed, October 29, by Drs. Bennett A. Melgaard, Sioux City, and Samuel D. Carney on "Clinical Diagnosis in Diseases of Infancy" and "Fractures of the Skull," respectively.——The Linn County Medical Society was addressed, October 9, by Dr. Charles A. Aldrich, Winnetka, Ill., on treatment of acute inflammation of the kidneys in children.

KENTUCKY

Society News.—Dr. Orville R. Miller addressed the Jefferson County Medical Society, November 3, on "Low Back Pain"; Drs. Woodford B. Troutman and William J. Young, Louisville, presented case reports on "Periarteritis Nodosa, with Autopsy" and "Superfluous Hair and the X-Ray," respectively.——The Bourbon County Medical Society was addressed, October 23, in Paris, by Drs. Charles G. Daugherty, Paris, and George H. Gregory, Versailles, on "Abdominal Pains Caused by Diseases Outside the Abdomen" and "Epidemics of Spinal Meningitis," respectively.——The Southwestern Kentucky Medical Association was addressed, October 29, by Drs. Virgil E. Simpson, Louisville, on "Modern Methods of Handling the Diabetic Patient," and Elbert W. Jackson, Paducah, "Diagnostic Value of Cystoscopic Examinations."

Celebration of McDowell Day.—The Southern Medical Association and the Kentucky State Medical Association jointly conducted a program to honor Dr. Ephraim McDowell, the father of ovariotomy, November 5, following the scientific activities of the annual meeting of the Southern Medical Association at Louisville. A sculptor's model of the statue of McDowell placed in Statuary Hall in the Capitol Building, Washington, D. C., was unveiled in the rotunda of the capitol of Kentucky at Frankfort. The visiting physicians formed a motorcade from Louisville to Frankfort and after the unveiling ceremonies proceeded to the McDowell home in Danville, and then to the grave in the public square, where a wreath was laid on the monument erected over his grave by the Kentucky State Medical Association and dedicated in May, 1879. The motorcade then proceeded to Harrodsburg for an inspection of the Pioneer Memorial State Park and then on to Louisville. Dr. McDowell performed the first abdominal operation in the world for the removal of a tumor in 1809.

LOUISIANA

Society News.—The Seventh District Medical Association was addressed, October 9, by Drs. Thomas B. Sellers, New Orleans, on "Constitutional Symptoms of Gynecologic Origin and Treatment of Causative Conditions"; Henry W. E. Walther, New Orleans, "Problems of Cases with Urinary Stones," and Lionel J. Bienvenu, Jr., Opelousas, "Use of Diathermy in Severe Prostatic Conditions."——The Orleans Parish Medical Society was addressed, October 27, by Drs. Charles Walter Mattingly on "Acute Perforation of Peptic Ulcers"; Drs. Edward William Alton Ochsner and Idys M. Gage discussed "Avertin as a Basal Anesthetic."——Dr. Charles J. Bloom addressed the Rapides Parish Medical Society, October 6, at Alexandria on "Feeding Problems of Infancy and Childhood."——The St. Tammany Parish Medical Society was host to the Sixth District Medical Society, October 30, in Covington; the scientific program included papers by Drs. Elbert E. Lafferty, Bogalusa, on "Fracture of the Elbow in Children," and Stanford Chaille Jamison, New Orleans, on pneumonia.

MISSISSIPPI

Society News.—The East Mississippi Four County Medical Society was addressed at Meridian, October 9, by Dr. Terry L. Bennett on syphilis; Dr. Felix J. Underwood, Jackson, spoke on the death rate among the physicians in Mississippi during the past nine months.——The Winona District Medical Society was addressed, October 7, by Drs. George Y. Gillespie, Jr., Greenwood, on "Pyelitis"; Inman W. Cooper, Meridian, "Organized Medicine," and Robert M. Stephenson, Lexington, "Surgical Emergencies."——Drs. Lewis H. Hightower, Itta Bena, and Frank H. Hagaman, Jackson, addressed the Delta Medical Society, October 8, on "Diagnosis in Rural Practice" and "Fractures of the Lower End of the Humerus."——Dr. Van Buren Philpot, Houston, addressed the Northeast Mississippi Thirteen County Medical Society at Corinth, September 16, on "Uterine Hemorrhage."——The fifty-seventh annual session of the Clarksdale and Six Counties Medical Association was addressed in Clarksdale, November 5, among others, by Drs. Phillip C. Schreier and Matthew Wilson Searight, Memphis, Tenn., on "Indications of Low Cervical Cesarean Section" and "Infections of the Cervix Uteri."

NEBRASKA

Society News.—The Omaha-Douglas County Medical Society was addressed, November 12, by Drs. John W. Duncan and Louis B. Bushman on "Postoperative Heat Stroke" and "Headache and Eyestrain," respectively; a symposium on mastoid diseases was conducted by Drs. Donald R. Owen, A. R. Knode, Claude T. Uren and Albert F. Tyler.——At the semiannual meeting of the Nebraska Association of Medical Women, November 8, the speakers and their subjects were Drs. Inez C. Philbrick, Lincoln, "Opportunities of Medical Women"; Esther I. McEachen, "Complete Physical Examination of Children"; Dr. Margaret J. O'Sullivan, Omaha, presented case reports on Vincent's infection of the vagina and cervical occlusion after the menopause.

NEW HAMPSHIRE

Society News.—The New Hampshire Surgical Club was addressed, September 15, at Lake Sunapee, by Drs. Delos J. Bristol, Jr., Boston, on obstetric problems; John F. Gile, Hanover, "Diverticula of the Stomach"; William Jason Mixter, Boston, "Progress in Surgery of the Sympathetic System"; Ezra A. Jones, Manchester, "Low Back Pain"; Dr. Carleton R. Metcalf, Concord, the incoming president, spoke on "History of Surgery in New Hampshire."

NEW JERSEY

Typhoid Carriers.—New Jersey now has thirty-six known typhoid carriers on its list which includes seven added during the last year. The occupation and residence of each typhoid carrier resident in the state is checked at least once a year by local authorities. A regulation requiring a report of all typhoid carriers has been adopted by Ohio, Michigan and Indiana.

Dr. Cushing Honored.—Dr. Harvey Cushing, Boston, will receive, December 6, the award of the Montclair Yale Bowl for 1930 by the Yale Club of Montclair, New Jersey. The presentation follows the custom of the past decade, which recognizes eminent graduates of Yale. The award has not heretofore gone to any professional man or scientist. Dr. Cushing graduated from Yale in 1891.

Additions to Sanatorium Opened.—Opening exercises of the new $1,500,000 additions to the Essex Mountain Sanatorium at Verona were held, October 25. With the new hospital, the bed capacity of the sanatorium will be increased to a minimum of 388 and a maximum of 443 beds. The investment in the sanatorium has now reached $3,913,733. The appropriation for its maintenance for 1930 was $470,000. The hospital is used chiefly for advanced cases of communicable diseases. In the matter of tuberculosis, the county has a joint responsibility with the state, but the state's participation is limited to the acceptance of certain early cases of a curable nature which are treated at the New Jersey Sanatorium for Tuberculous Diseases at Glen Gardner, and to a contribution of approximately $100,000 a year toward the cost of board and care of tuberculous patients. With these two hospitals and the Essex County Hospital for mental diseases at Cedar Grove, the county has an investment of approximately $15,000,000 and the total appropriation for their operation for the present year is $2,175,750. The Verona hospital for mental diseases, known as Overbrook Hospital, had on January 1 a patient population of 2,410. Today there are more than 2,600 patients. The 653 patients admitted last year were an increase of 20 per cent over the year preceding.

Prosecutions by State Board of Medical Examiners.—The following illegal practitioners of medicine were recently prosecuted by the State of New Jersey Board of Medical Examiners:

Schuyler C. Pew, Perth Amboy, held himself out as a masseur and gave electric treatments.

Theodore DeDragic, Atlantic City, held himself out as a Vienna physician and physiotherapist; on failure to pay the fine was committed to jail for thirty days.

Emma L. Garwood, Beverly, advertised as a masseuse and electrotherapist.

Frank Weber, Burlington.

Mary A. Wilson, psychoanalysist of Newark, paid the penalty.

Thomas Parusis, Jersey City; on failure to pay the penalty was committed to jail for thirty days.

Daniel S. Priest, Toms River, druggist, paid the penalty.

Ernest M. Bick, South Orange, prescribed medicine to be taken internally.

Lillian Kallila, Jersey City, paid the penalty.

Aino S. Mateinheimo, Jersey City, paid the penalty.

Eugene Gebauer, Newark, practiced electrotherapy and hydrotherapy; refused to pay the penalty and was committed to jail for five days.

Nicklos N. Barron, Newark, prescribed medicine to be used both externally and internally; paid the penalty.

Abram Taub, druggist, Pompton Plains.

Solomon Boxer, druggist, Ventnot, had a diploma in his drug store showing that he was a graduate of a college of naturopathy but prescribed drugs for his patients.

William Miles, Atlantic City, paid the penalty.

Frieda Korte, Atlantic City; gave electric treatments and colonic irrigations; unable to pay the penalty and, being the third time that she was convicted, was committed for sixty days.

George Lezenby, Jr., Atlantic City, naturopath; paid the penalty.

Charles Schaefer, Sr., Oaklyn, paid the penalty.

Charles Schaefer, Jr., Oaklyn, paid the penalty.

Charles S. Newell, Merchantville, naturopath; paid the penalty.

Elmgott W. Gebhardt, Merchantville, druggist, paid the penalty.

NEW YORK

Health at Albany.—Telegraphic reports to the U. S. Department of Commerce from seventy-eight cities with a total population of thirty-five million, for the week ended November 8, indicate that the highest mortality rate (19.6) was for Albany, and the rate for the group of cities as a whole, 11.7. The mortality rate for Albany for the corresponding week last year was 15.7, and for the group of cities, 11.7. The annual rate for seventy-eight cities for the forty-five weeks of 1930 was 11.9 as compared with the rate of 12.7 for the corresponding period of 1929.

New York City

Faculty Changes at Columbia.—The following recent faculty changes in Columbia University have been announced: Maxwell Karshan, Ph.D., to be associate professor of biologic chemistry; Drs. John P. Caffey, to be assistant clinical professor of diseases of children; Beatrice C. Seegal, to be assistant professor of bacteriology; John D. Lyttle, to be assistant clinical professor of diseases of children; Leon H. Cornwall, to be associate professor of neurology.

Personal.—Dr. John Guttman has been appointed assistant professor of otology at the New York Post-Graduate Medical School and Hospital.——Dr. G. Franchini, director, School of Tropical Medicine, University of Bologna, Italy, recently addressed the Association of Italian Physicians in America on the work of Alphonse Laveran.——Madame N. Dobrovolskaya-Zavadskaya of the Pasteur Institute, Paris, and formerly professor of surgery, University of Voronej, Russia, was recently the guest of the Roerich Institute; she will read a paper at the meeting of the Radiological Society of North America in Los Angeles, December 1-5.

Society News.—The Women's Medical Association of New York City was addressed, November 12, by Drs. Elaine P. Ralli and James Shannon on "A Study of the Five-Hour Blood Sugar Curve in Patients with Varying Degrees of Diabetes"; Priscilla White, Boston, "Care and Treatment of Diabetic Children," and Samuel Standard, "Treatment of the Surgical Diabetic."——Dr. John E. Jennings addressed the New York Surgical Society, November 12, on "Relation of Welch Bacillus to Appendicitis and Its Complications." Dr. J. William Hinton will address the society, November 26, on "Bleeding and Gastroduodenal Ulcers," with report of fifty-two cases.——"Allergic Conditions Encountered in General Practice" was the subject of Dr. Robert Cooke before the Medical Society of the County of Kings, November 14.

Social Hygiene Campaign of Health Demonstration.—An intensive social hygiene campaign was opened, November 1, by the Bellevue-Yorkville Health Demonstration in cooperation with the New York City Health Department, the New York Tuberculosis and Health Association and the American Social Hygiene Association. The object is to inform every resident in the Bellevue-Yorkville district of the risks of the so-called social diseases and to get infected individuals under good medical care. Exhibits were set up for public attendance and talks were given by authoritative lecturers in halls, industrial plants and other meeting places. Publicity was augmented by the distribution of pamphlets, the display of posters and exhibits and motion pictures. In preparation for the November campaign, courses of lectures, provided for physicians, nurses and social workers during October, gave the nurse and patient scientific information on methods of combating venereal diseases.

OHIO

Personal.—Dr. Henry Ware Newman, late of Birmingham, Ala., and formerly of Chinkiang, China, arrived in Cincinnati, November 4, to become associated with Dr. Carey P. McCord in the work carried on by the Industrial Health Conservancy Laboratories. In China he organized a modern mission hospital at the port city of Chinkiang on the Yangtse River, at which place he was medical officer of the port under the Chinese Maritime Customs.——Dr. John W. Clark, Oak Hill, was appointed health officer of Jackson County, October 20.

Society News.—Dr. Temple S. Fay, Philadelphia, conducted the eighth annual graduate course before the Academy of Medicine of Toledo and Lucas County, November 17-21, on "Diseases of the Nervous System."——Dr. Robert H. Ivy, Philadelphia, addressed the annual joint meeting of the Toledo Dental Society and the Toledo Academy of Medicine, November 14, on "Fractures of the Jaw."——Dr. Oskar Klotz, Toronto, Ont., addressed the Academy of Medicine of Cleveland, November 21, on "The Present Status of the Yellow Fever Problem."——The Union District Medical Association was addressed, October 23, by Drs. Edwin W. Mitchell and Willard D. Haines, both of Cincinnati, on "Management, Calculation of Diet and Requirements of Diabetics" and "Diagnosis and Treatment of Nonsurgical Stomach Disorders," respectively.

OREGON

License Restored.—The license to practice medicine of Dr. Horace M. Patton, suspended, April 3, for a six months' probation, was restored, October 2, by the Board of Medical Examiners of the State of Oregon.

PENNSYLVANIA

Society News.—The Lycoming County Medical Society held its annual fall clinic day, November 14, at the Williamsport Hospital; Drs. James G. Logue and Alfred C. Ormond, Jr., spoke on "Cerebral Hemorrhage of New-Born" and "Spinal Anesthesia," respectively; Dr. John P. Harley gave a clinical discussion on diverticulitis of the sigmoid and treatment of bacteremia, and Dr. William E. Delaney, Jr., gave a cinema demonstration of treatment of fractures of the lower extremity.——The Allegheny County Medical Society was addressed, November 18, in Pittsburgh by Drs. John R. McCurdy on "Oxygen Inhalation Therapy: Methods and Technic"; Ernest W. Willetts, "Agranulocytosis," and Lester Hollander, "Eczema from the Allergic Standpoint."——"Acute Intestinal Obstruction from the Standpoint of the General Practitioner" was the subject of Dr. Donald Guthrie, Sayre, before the Elk County Medical Society, October 28.——A symposium on head trauma was conducted before the Washington County Medical Society at Washington, November 12, by Drs. John W. G. Hannon, Clarence J. McCullough and William J. L. McCullough.

Philadelphia

Society News.—Dr. Walter Timme, New York, addressed the Philadelphia Psychiatric Society, November 14, on "Behavior Disturbances as Related to Certain Endocrine Conditions."——The annual Gross lecture was delivered by Dr. William H. Woglom of the Institute of Cancer Research, Columbia University, before the Pathological Society of Philadelphia, November 13, on "Experimental Cancer."

MEDICAL NEWS

SOUTH DAKOTA

Society News.—Drs. Walter A. Fansler and Frederick C. Rodda, Minneapolis, addressed the Watertown District Medical Society, October 15, on cancer and the diseases of children, respectively.——Dr. Clarence E. Robbins opened the program of the joint meeting of the Fourth District Medical Society and members of the Rosebud Society, November 19, in Pierre, with a film on "Surgical Treatment of the Extremities"; Drs. Percy D. Peabody, Webster, and John F. D. Cook, Langford, president and secretary, respectively, of the state medical association were guests at the meeting.

VIRGINIA

Medical Films for Loan.—The extension department of the University of Virginia Medical School has arranged through its bureau of visual instruction for a number of moving picture films and slides to be lent to local medical societies. These deal with medical subjects for physicians and subjects of general interest in educating the public. The films include "Preliminary Hemostasis in Goiter Surgery"; "Puerperal Infection"; "Through Life's Windows," film to educate the public to appreciate good eyesight, and "Light and Lighting" (glass slides only), which explains the theory of light and its action on the human eye. All of these films may be obtained without cost other than transportation charges by applying to George W. Eutsler, acting executive secretary, P. O. Box 707, University, Va.

WASHINGTON

Society News.—The White Salmon Chamber of Commerce held public health night, October 20; the meeting was turned over to the Skamania-Klickitat Medical Society and opportunity was given to the lay public to question physicians on medical matters; the society held its regular semiannual meeting immediately following adjournment of the chamber of commerce health meet; Dr. Christian F. Quevli, Jr., Tacoma, presented a paper on "Fluoroscopy of the Heart and Aorta."——"Placental Hormones" was the subject of a paper by Dr. James B. Collip, Montreal, Canada, before the King County Medical Society, October 7; Dr. James F. Battle, Seattle, presented a case report on tularemia.

WISCONSIN

Steady Increase in Compensation Benefits.—Almost $50,000,000 has been paid to persons injured in industrial accidents under the workmen's compensation law since its enactment in 1911, according to the *Wisconsin Medical Journal*. There has been a steady increase in the amount of compensation paid, beginning with $253,300 in 1912 to $5,402,467 in 1929. During this time 330,554 cases have been reported; the average benefits paid in all cases were $173, of which $130 was paid in indemnity and $42 in medical care. The cost of medical care has almost trebled since the workmen's compensation law was enacted. The average paid per case in 1912 was $21, as compared with an average of $61 during the past year.

Society News.—The La Crosse County Medical Society was addressed recently by Dr. Joseph W. Gale, Madison, on "Treatment of Pulmonary Tuberculosis," illustrated.——Dr. Albert W. Bryan, Madison, addressed the Marinette-Florence County Medical Society, October 9, on "The Current Attitude Regarding Epilepsy, Its Nature and Rational Treatment."——"Colonic Anesthesia" was the subject of Dr. Albert B. Leigh, Kaukauna, before the Outagamie County Medical Society, September 23, and "Adhesions Following Operations on the Gallbladder" that of Dr. Victor F. Marshall, Appleton; Dr. Ernest L. Bolton, Appleton, discussed a case of hemolytic jaundice with an enlarged spleen.——The Milwaukee Roentgen Ray Society was addressed, October 3, by Drs. Eben J. Carey and Harry B. Podlasky, Milwaukee, on "Myogenic Rotary-Lateral Scoliosis" and "The Recent Bloodgood Bone Tumor Clinic," respectively.——"Plastic Surgery in Relation to the General Practice of Medicine and Surgery" was the subject of Dr. George V. I. Brown, Milwaukee, before the Brown-Kewaunee County Medical Society, October 30.

GENERAL

Winners in Health Conservation Contest.—At the recent meeting of the American Public Health Association in Fort Worth, Texas, certificates were awarded to the health departments of Milwaukee, Wis.; Syracuse, N. Y.; East Orange, N. J.; White Plains, N. Y., and Sidney, Ohio, winners in the first Inter-Chamber Health Conservation Contest sponsored by the U. S. Chamber of Commerce.

Deaths from Alcoholism Decreased Last Year.—Deaths from alcoholism in 1929 in the registration area of the United States were fewer than in 1928, or 1927, according to figures compiled by the division of vital statistics of the bureau of the census. The figures for the year 1929 were 4,339; for the year 1928, 4,627, and for the year 1927, 4,372. The death rate from cirrhosis of the liver for the year 1929 was less than for 1928, but more than for the year 1927. The figures for the year 1929 were 8,377; for the year 1928, 8,630, and for the year 1927, 8,098.

Physicians Educated at Home.—The number of medical graduates educated at home colleges compiled for the Middle Western states by the committee on medical education of the Indiana State Medical Association shows that there were 76 per cent educated by the state university in Iowa, 73 per cent in Minnesota, 71 per cent in Indiana, 70 per cent in Nebraska, 58 per cent in Kansas, 45 per cent in Michigan (76 per cent in all schools of the state), 40 per cent in Wisconsin (71 per cent in all schools in the state), 36 per cent in Illinois (85 per cent in all schools in the state) and 25 per cent in Ohio (58 per cent in all schools of the state).

Red Cross Activities.—Among some of the accomplishments noted for the year ended June 30, 1930, were $1,182,350.08 expended for service and disabled ex-service men and their families; $1,341,620.65 for the relief of 95,000 sufferers in 108 disasters; this was $658,267.16 in excess of contributions received for disaster relief; 51,047 Red Cross nurses enrolled for national and international emergencies; 74,437 people trained and certified in first aid; 52,798 people trained and certified in life saving; 37,626 people trained and certified in home hygiene and care of sick; 219,084 pages of braille transcribed for the blind, and 6,930,849 school children enrolled in the Junior Red Cross.

Fellowships in Extramural Psychiatry.—The National Committee for Mental Hygiene has announced fellowships for training in extramural psychiatry open to physicians under 35 years of age, graduates of class A medical schools, and those who have had at least one year's training in a hospital for mental disease, maintaining set standards for clinical work and instruction. A longer period of hospital training is desirable. Applicants able to meet these requirements will not be required to take competitive or oral examinations. Suggestions will be made on the basis of length and type of previous training in the formal psychiatry; all general fitness for the work contemplated, and (in most cases) on the results of a personal interview. The fellowships cover one year's training with assignments at special places, as the Boston Psychopathic Hospital, the Judge Baker Foundation, Boston, the Institute for Juvenile Research, Chicago, and various child guidance clinics in Cleveland, Philadelphia and other cities. The fellowships carry stipends at the rate of $2,000 to $2,500 for the twelve months' period. Applications should be made to Dr. Frankwood E. Williams, National Committee for Mental Hygiene, 370 Seventh Avenue, New York.

Sixty-Five Recoveries from Leprosy.—The U. S. Public Health Service gives a summary of the leprosy cases discharged from the National Leprosarium, which is conducted by the service at Carville, La. More than 300 lepers are under treatment there. During the past ten years, sixty-five lepers have been discharged from this hospital as apparently recovered from leprosy and no longer a menace to public health. The average period of hospital care varied from five to nine years. The shortest period of treatment was one and one-half years and the longest was seventeen years. Fifty-five of these patients received crude chaulmoogra oil by mouth, and sixteen of this group received no other medicine. Twelve received benzocaine-chaulmoogra oil by intramuscular injection and four of these received no other medical treatment. Twenty-one received the ethyl esters of chaulmoogra oil by intramuscular injection, and eight of these received no other medicine. The basic treatment of leprosy is similar to that for tuberculosis, and all lepers at the National Leprosarium, no matter what medicines are given, follow a sanatorium regimen of food, fresh air and rest almost identical with that prevailing in a tuberculosis hospital.

Mortality from Automobile Accidents in 1929.—The U. S. Department of Commerce announces that in the death registration area in continental United States accidents in which automobiles were involved caused 29,531 deaths in 1929 with a death rate of 25.4 per hundred thousand of population. Of this total, collisions of automobiles with railroad trains and with street cars were responsible for 1,958 and 507 deaths, respectively, which, if excluded, would leave 27,066 deaths with a death rate of 23.3. The death registration area in 1929 was composed of forty-six states, the District of Columbia, and nine registration cities in nonregistration states, and included 95.7 per cent of the total population of continental United States. Assuming that the same death rate would hold true for the remainder of the continental United States, the number of deaths in 1929 from accidents in which automobiles were involved is estimated as 30,858 for the whole country, as compared with an estimate of 27,618 for the year 1928. These figures indicate an increase of more than 3,000 deaths from this cause in one year. Comparing the states, the greatest number of deaths occurred in New York (3,192), followed by Pennsylvania (2,331), Ohio (2,320) and California (2,271). Nevada has the highest death rate per hundred thousand of population (51.1). Next in order are California (41.2), Arizona (36.2), Florida (35.5), Ohio (35.3), Indiana (34.1) and Wyoming (33.7). If collisions with railroad trains and street cars are excluded, Delaware, Idaho, Illinois, Montana, Oregon, Rhode Island, Vermont and Wisconsin had fewer deaths than in the previous year. The number of automobile deaths reported for each state and city includes those due to accidents outside the limits of the city or state. Chicago had the greatest number of deaths from collisions of automobiles with railroad trains (26) and with street cars (30).

Society News.—The thirty-fifth annual session of the Seaboard Medical Association of Virginia and North Carolina will be held at Elizabeth City, N. C., December 2-4, with headquarters at Hotel Virginia Dare. The guest speakers will be Drs. Wilburt C. Davison, Durham, N. C., "The Duke Medical School"; Thomas McCrae, Philadelphia, "Functional Disorders of the Colon"; Walter A. Baetjer, Baltimore, "Infectious Arthritis"; Arthur M. Shipley, Baltimore, "Suppurations Within the Chest." Mr. M. F. Cullers, Chicago, will present a motion picture film on "Movements of the Alimentary Tract in Experimental Animals."——At the twenty-seventh annual meeting of the American Association of Railway Surgeons, Dr. Guy G. Dowdall, Chicago, was elected president; Drs. Earl B. Bush, Ames, Iowa, Emile O. Voyer, Minneapolis, and Frank A. Eckdall, Emporia, Kan., vice presidents, and Dr. Louis J. Mitchell, Chicago, secretary, reelected. The next annual meeting will be held in Chicago in November, 1931. This meeting was a joint one with the Surgical Association of the Chicago and North Western Railway and was addressed, among others, by Drs. Waltman Walters, Rochester, Minn., on "Congenital Abnormalities of the Genito-Urinary Tract and Their Treatment"; Sydney Walker, Jr., Chicago, "The Aftermath of 200 Intra-Ocular Steel Cases"; William H. Byford, Blue Island, Ill., "Fractures of the Lower Third of Femur"; John M. Dodson, director, Bureau of Health and Public Instruction, American Medical Association, Chicago, "Physical Examination of the Apparently Healthy," and Arthur E. McMahon, Glenwood City, Wis., "How Shall the General Practitioner Increase His Usefulness?"——Dr. Robert Lee Hoffmann, Kansas City, was elected president of the southwestern branch of the American Urological Association at its meeting in Lincoln, Neb., October 31. Kansas City was selected as the next place of meeting.

Milk-Borne Epidemics in Rural Areas.—The White House Conference on Child Health and Protection has made a report on the serious responsibility for providing clean and safe milk on the part of dairies, distributors of milk and milk control officials. The report shows that rural areas and small towns have the highest incidence of milk-borne epidemics and recommends the observance more fully of preventive measures, especially pasteurization. Communicable diseases transmitted through impure milk make it a hazard to life, the committee points out. A study of milk-borne epidemics during a six-year period, 1924-1929, discloses 258 epidemics involving 10,906 cases and causing 371 deaths. The conference made public the following additional information from the report:

"In 1929 there were 44 milk-borne epidemics, 1,959 cases, and 48 fatalities. Both in 1929 and during the six-year period epidemics in typhoid fever outnumbered other diseases. For 1929 there were 25 typhoid epidemics compared with 177 for the six-year period. A study of the incidence of milk-borne epidemics shows that the milk supply in the smaller cities and country towns is not generally produced and distributed under sanitary conditions and safeguards comparable to those of the large cities. There is a higher incidence of milk-borne epidemics in rural areas, small country towns and small cities with populations from 5,000 to 25,000. The greatest health hazard may be expected in areas of this size in relation to the consumption of unpasteurized milk. Because of the fact that approximately 50 per cent of the population reside in small towns and rural communities, the importance of having pasteurized and wholesome milk is self-evident. Diseases involved in milk-borne epidemics are as follows: diphtheria, dysentery, gastro-enteritis, paratyphoid, poliomyelitis, scarlet fever, septic sore throat, typhoid fever and undulant fever. During the six-year period surveyed with reference to milk-borne epidemics, 34 epidemics of scarlet fever and 22 of septic sore throat occurred. Bovine tuberculosis is being brought under control and thereby the problem of human infection with the bovine strains is being solved. Already large areas have been freed of the disease and at present there are over 27,000,000 cattle under official supervision. In June 986,607 cattle were tested." The committee recommends "that pasteurization be required wherever practicable; that producers, control and educational officials cooperate to give promise of the best and most lasting results, and that the state assume responsibility in milk control where local control is absent."

Government Services

Resignations from the Navy

The following resignations from the navy were recently announced: Lieut. Ernest D. Davis, Jr., effective October 21; Lieut. James T. Parker, effective October 27; Lieut. Charles G. Robertson, effective October 31.

Change of Station in the Navy

Lieut. James J. V. Cammisa to the U. S. S. *Pennsylvania*; Lieut. Comdr. Irving W. Jacobs from the Guardia Nacional, Nicaragua, to the U. S. Naval Hospital, Washington, D. C.; Lieut. Comdr. Julius F. Neuberger from the second brigade, U. S. Marines, Nicaragua, to the naval air station, Lakehurst, N. J.; Lieut. Harvey W. Miller from the Guardia Nacional, Nicaragua, to the U. S. Naval Hospital, Mare Island, Calif.; Lieut. Edward J. Goodbody from the U. S. S. *Arizona* to naval academy.

Changes in Veterans' Bureau Personnel

The October U. S. Veterans' Bureau Medical Bulletin notes the following recent changes in veterans' bureau personnel:

HOSPITALS

Dr. Frank L. Alloway, reappointed at Washington, D. C.
Dr. Roy A. Ashbaugh, appointed at American Lake, Wash.
Dr. Paul J. Borrows, appointed at North Chicago, Ill.
Dr. Richard L. Cook, transferred to Rutland Heights, Mass.
Dr. John E. Damron, appointed at Minneapolis.
Dr. Dudley T. Dawson, resigned at Knoxville, Iowa.
Dr. Durbin C. Day, detailed to Hines, Ill.
Dr. William R. Durham, detailed to Washington, D. C.
Dr. John T. Eagleton, detailed to Hines, Ill.
Dr. Edward H. Fite, appointed at Muskogee, Okla.
Dr. Paul M. Fulmer, appointed at Kansas City, Mo.
Dr. Ernest H. Gaither, appointed at Washington, D. C.
Dr. Michael J. Gold, appointed at Sunmount, N. Y.
Dr. William Goldberg, detailed to Castle Point, N. Y.
Dr. Stanton S. Hoechstetter, detailed to Bedford, Mass.
Dr. John A. Kennedy, detailed to Palo Alto, Calif.
Dr. Joseph V. Kennedy, appointed at Washington, D. C.
Dr. Spencer A. Kirkland, status changed from fee basis to part time at Atlanta, Ga.
Dr. Charles N. O. Leir, resigned at Knoxville, Iowa.
Dr. Horatio D. Luse, transferred to Excelsior Springs, Mo.
Dr. Chauncey C. Maher, appointed at Hines, Ill.
Dr. Francis J. Mantell, detailed to Atlanta, Ga.
Dr. Francis A. Marsh, permanently assigned at Chicago.
Dr. Elson D. McCullough, detailed to Chillicothe, Ohio.
Dr. Charles S. Miller, appointed at North Chicago, Ill.
Dr. Johnnie A. Norris, Jr., appointed at Gulfport, Miss.
Dr. Edward A. Oliver, resigned at Hines, Ill.
Dr. Jesse R. Patton, resigned at Sunmount, N. Y.
Dr. Lester M. Petrie, detailed at Aspinwall, Pa.
Dr. Appleton H. Pierce, appointed at Coatesville, Pa.
Dr. James F. Pitman, appointed at Alexandria, La.
Dr. Cloyd L. Pugh, detailed to Hines, Ill.
Dr. Wilber K. Riley, appointed at Fort Lyon, Colo.
Dr. Eugene W. Rockey, resigned at Portland, Ore.
Dr. Frederick R. Sims, transferred to Somerset Hills, N. J.
Dr. Herbert D. Snyder, transferred to Atlanta, Ga.
Dr. Henry Ladd Stickney, transferred to Sunmount, N. Y.
Dr. William H. Thearle, status changed from fee basis to part time at San Fernando, Calif.
Dr. Raymond D. Tompkins, transferred to Washington, D. C.
Dr. Max J. Wollenman, detailed at Kansas City, Mo.
Dr. Edwin E. Ziegler, permanently assigned at Northport, Long Island, N. Y.

REGIONAL OFFICES

Dr. Joseph P. Delaney, Jr., appointed at Little Rock, Ark.
Dr. Louis J. Genella, resigned at New Orleans.
Dr. George V. Lewis, resigned at Little Rock, Ark.
Dr. Robert E. Parrish, appointed at San Antonio, Texas.
Dr. E. Laurence Scott, appointed at Birmingham, Ala.
Dr. Edgar D. Shanks, resigned at Atlanta, Ga.
Dr. Floyd Webb, reappointed at Nashville, Tenn.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 1, 1930.

Conference on Maternal Mortality

The fifth conference on maternal mortality, held in London, was presided over by the Duchess of Atholl, M.P. Nearly 1,000 delegates representing about 300 organizations attended. Mr. Arthur Greenwood, minister of health, delivered an address in which he said that it was astonishing that, in spite of what had been done, the problem of maternal mortality remained as stubborn as ever it was. Infant mortality and the general death rate had been reduced and yet the number of deaths from the normal process of motherhood was still as great as ever. The greatest expert could not convince him that motherhood should be so dangerous as it is. It was clear that a substantial proportion of maternal deaths were avoidable. He was told that 50 per cent were but he was inclined to place the percentage higher.

A NATIONAL MATERNITY SERVICE

With regard to a national maternity service, he said that behind that ideal lay a good many difficulties. He had an objective to which the government was committed—a national maternity scheme fulfilling all the principles laid down in successive reports. He would like to forge a bond between the national health insurance scheme and the local health authorities which would give an effective maternity scheme on a national basis. The scheme could be framed only when those who were to work it conferred for a general understanding. A resolution was passed expressing agreement with the interim report of the departmental committee on maternal mortality, which supported the previous demand of the conference for an effective national maternity service, based on an increase in the length and content of the training of medical students in obstetrics and on essential services, and urging the coordination of voluntary effort with the work of public authorities. Dr. Brackenbury, chairman of the council of the British Medical Association, said that the resolution had the solid support of the organized medical profession.

The Fight Against Leprosy

The British Empire Leprosy Relief Association is not a charitable institution but a health organization on a grand scale, which endeavors to exercise international action on scientific lines. A meeting of the general committee has been held at the India office. Lord Chelmsford, the president, described a remarkable record of achievement. In Nigeria the association had provided sixty-six settlements and in Nyasaland and Rhodesia fifty-nine for the treatment of leprosy. Its organ, the *Quarterly Leprosy Review*, went to workers and investigators all over the world. Dr. R. G. Cochrane, the secretary, gave an account of his tour through Egypt, the Sudan, Kenya, Zanzibar, Tanganyika, Nyasaland, Rhodesia and South Africa. During the six years of its existence the association had sent out at least a million doses of remedies against leprosy to workers in the field. It had done much for the training of medical officers and for the organization of leper work. But the work was handicapped by lack of funds. It was tragic that in the whole of East and Central Africa there was no one institution comparable to those in India, where medical officers and dressers could get a training in the diagnosis and treatment of leprosy.

Perforation of the Duodenum While Flying

The perforation of a hollow viscus while flying has been recorded, in a letter to the *British Medical Journal*. Surgeon-Commander F. J. D. Twigg reports the case of a corporal in the air force, aged 30, who was seized with abdominal pain in a flying boat at Reykjavik when at an altitude of 2,000 feet. The machine was immediately brought to the water and medical assistance sought from the warship *Rodney*, to which he was transferred. He gave a history of dyspepsia for several years and presented a typical picture of perforation of an abdominal viscus. Immediate operation was performed and a duodenal perforation was sutured. Recovery followed.

Our Deadly Streets: Eighteen Deaths a Day

The general secretary of the National "Safety First" Association, Col. J. A. A. Pickard, in a lecture at the Royal Institution of Public Health said that fatal accidents of all kinds last year destroyed more than half a million years of normal expectation of life. Also the rate of increase in the number of automobiles licensed and in the number of street accidents had been almost identical every year since 1921. On an average, 18 persons were killed every day and nearly 500 injured in street accidents. Every year 1 person was killed for each 400 automobiles licensed and 1 was injured for each 18. In the first three months of the present year in London 66 more people had been killed (an increase of 26 per cent) and 2,260 injured (an increase of 24 per cent) than in the corresponding period of last year. For the first nine months of the present year, street accident returns from 155 provincial districts revealed an increase of 150 persons killed (or 8 per cent) and of 2,989 injured (or 6 per cent) as compared with last year. Among other facts of interest, Colonel Pickard mentioned that half as many females as males are killed in street accidents, that children are much better than their elders in avoiding accidents, that about half the victims of fatal accidents are pedestrians, about one fourth motor cyclists or their passengers, about one eighth other motorists, and the remaining eighth pedal cyclists.

The Position of London Hospitals

The annual statistical review for 1929, just published, shows no falling off in the amount of voluntary contributions, in spite of the industrial depression. On the contrary, they increased during the three years 1927-1929 from $8,000,000 to $8,800,000. If receipts for building and endowment are included, the total voluntary gifts in 1929 were $14,000,000. The total income of the 138 London hospitals dealt with in the review amounted to $18,000,000, a record figure and an increase of $840,000 on the previous year. The work in the voluntary hospitals of London is extending. The increased work is the outcome of gradual change in the part they play. They are no longer only a refuge for the indigent sick; the progress of curative medicine and surgery, while increasing the number of those patients which can effectively be treated, has also led to demands from other classes for services which the voluntary hospitals alone can give. The middle classes are more and more heavily taxed, while the progress of curative medicine and surgery has resulted in more elaborate and therefore more costly methods, which only the well-to-do can command in private. The report therefore claims that the voluntary system is proving adequate to discharge the heavier tasks imposed on it by changing social and medical conditions. It is necessary to point this out at a time when socialists are clamoring for universal state-supported hospitals. One of their main points is that such a necessity as hospitals should not have to depend on charity with its constant appeals by all sorts of devices for more money. As for them the state has a bottomless purse, they overlook the plight of the already overburdened taxpayer as well as the great advantages of high efficiency with low costs of administration of the voluntary system, under which practically the whole of British medicine has been created.

Haffkine, the Bacteriologist, is Dead

The death has occurred, at the age of 70, of Waldemar Mordecai Wolff Haffkine, one of the pioneers of bacteriology, who ranks with Koch, von Behring, Eberth and Kitasato in laying the foundations of modern vaccinotherapy. Born in Odessa of Jewish parentage, he was educated at the local university, from which he graduated in 1884. Until 1888 he pursued research work at the zoological museum of Odessa and then became assistant to the professor of physiology at Geneva. His reputation was so great that after a year in this post he was invited by Pasteur to be his assistant in Paris. At the Pasteur Institute he worked out a scheme of preventive inoculation and in 1893 was invited by the Indian government to devise methods for the arrest of cholera. He worked at the new government research laboratory at Bombay, now called the Haffkine Institute, where he used with good results a modified cholera virus as a protective, a method which he had worked out with Professor Roux in Paris. In 1896 the disastrous epidemic of plague, which broke out in Bombay, led the government to entrust him with the preparation of a vaccine against plague. The Indian Plague Commission reported in 1900 that his vaccine produced a diminution of attack and death rates and the establishment of temporary protection. A series of fatalities in 1902 threw doubt on the methods of manufacture of his vaccine, but they were traced to gross neglect of precautions in administration. The present estimate of the value of his vaccine is that when used in an epidemic of plague it reduces the mortality 85 per cent. What this means can be realized when the many millions of doses used in India are considered. Until 1915 he remained director of the biologic laboratory at Calcutta, when he resigned and went to live in Paris. His last services were given in the Great War. The British forces in France had voluntarily received prophylactic inoculation against typhoid infection, but not against paratyphoid A and B. In view of the entry of troops from India and the transference of divisions from the Mediterranean, it was urged that the complete inoculation should be performed. But Sir William Leishman, director of pathology of the expeditionary forces, opposed immediate action because he feared more severe reactions, which might impede military reinforcement. A committee of eminent pathologists was appointed to consider the question and Haffkine joined them as a kind of assessor. His arguments, supporting those of Sir Frederick Andrews and Sir Andrew Balfour, went a long way to convince Leishman. After a trial on 300 men the T A B vaccine was issued in all areas in January, 1916.

PARIS

(From Our Regular Correspondent)

Oct. 22, 1930.

The French Congress of Hygiene

The French Congress of Hygiene, which is organized regularly every year by the Société de médecine publique et de génie sanitaire, was held in the large amphitheater of the Pasteur Institute in Paris, October 20. The opening address was given by Mr. Désiré Ferry, minister of public health. The new minister, a young man with abundant energy, has announced that the revision of the old law of 1902 pertaining to public health, a reform repeatedly promised but never realized, would be submitted to parliament when it opened. Departmental hygienic inspection will be transformed in each department of France in the direction of hygienic services the directors of which will be chosen through competitive examination. Medical inspection of schools will be extended to all the departments of France by means of special personnel consisting of physicians and aids. The municipal sanitary regulations will be replaced by departmental regulations, except for a few local matters, which will remain under the control of the mayors. The transmissible diseases notification of which by the physician has been optional will be placed on the compulsory list. To these, open tuberculosis will be added, heretofore omitted for sentimental reasons. Notification will be followed by isolation of the patients and hospitalization. Supervision of the sources of drinking water will be compulsory; also the construction of suitable dwellings. What the minister did not and could not very well say, since he is a politician, is that the principal reform to be accomplished is the suppression of political influence in the application of the law. The main weak spot of the law of 1902 was that it imposed on the mayor in each commune the duty of applying the law. The mayor, lest he displease his supporters, is tempted to neglect action that might annoy any one. Then, the necessary funds for the creation of hygienic services must be voted by the municipal council and the general council, and these have the power to refuse such aid if they decide to be economical. Public health measures will not be seriously applied in France until their application is placed in the hands of the minister of health and technical councils, and is not left to incompetent or careless mayors and to municipal or departmental assemblies always inclined to be parsimonious in such matters. The address of the minister awakened great hopes in the minds of the many hygienists present and was vigorously applauded. The congress began immediately its scientific sessions. Professor Sacquépée presented a paper on psittacosis, which, toward the close of last year, appeared in a widespread epidemic form extending from Argentina to North America, England, France, Germany, Switzerland, Denmark, the Netherlands and Czechoslovakia. Infection from man to man is rare. The rôle of the Nocard bacillus in psittacosis was carefully studied, and there was a tendency to incriminate rather a filtrable virus. The prophylactic measures are easy to apply, since all that is necessary is to place an embargo on the importation of parrots. As soon as that was done, the epidemic was checked. Dr. Lesage gave the results of studies on infantile statistics. He suggested that the mortality of the first year be figured separately, since it has a special importance. The present statistics of the hospitals that combine the first two years have, therefore, little value. This change has been requested for some time by the Academy of Medicine. Mr. Colin emphasized the importance, in the prophylaxis of a great number of epidemic diseases, of the regular disinfection of the nasal fossae. Basing his opinion on many observations, Mr. Colin demanded the daily application of hygienic care to the rhinopharynx, which would diminish the general mortality by 60 per cent and eliminate, at the same time, many germ carriers. Mr. Béreux supported the view, which is widespread in the United States and in Germany, that the disinfection of rooms by the ordinary procedures is often ineffective, and suggested that they be replaced by painting, which exerts a genuine disinfective action. Mr. Gréhant called attention to the important rôle of congenital syphilis in child mortality. Frequently the serologic reactions are negative in congenital syphilis, and the stigmas appear at a late date. Nevertheless, investigations made in families and hygienic dispensaries bring out plainly the great part played by this cause of stillbirths. Mr. Cassan gave an account of the hygienic measures applied in the department of Aude, last year, following the floods, consisting of the disinfection of the rooms of dwellings, the supervision of drinking water, and the control of vaccinations. Sigallas and Marcotte of Bordeaux presented an apparatus, easy to install in a few hours, by means of which drinking water can be disinfected, in case of an epidemic, with the aid of calcium hypochlorite. The cost of upkeep is insignificant. Mouisset and Tolot presented a resolution of the Comité départemental du Rhône calling attention to the rôle of contaminated objects introduced into the mouth in the transmission of epidemic diseases and demanding the prohibition of whistles and toys that frequently pass from one child to another. Mr. Foucaud spoke on the prophylaxis of pertussis, recommending wider use of the method, in which children cough in front of petri dishes. The cultivation of the Bordet-Gengou bacillus is then easy and enables the examiner to isolate children in the incubation period and to discover the germ carriers. Dr. Masserli of Lausanne demanded the physiologic control of sports in the schools, by the physician. Mr. Bezault presented a study on the purification of muds and garbage. The German procedure which utilizes an old idea of the English and produces biologic fermentation of the muds with liberation of inflammable gases, which are caught in receptacles and used industrially, is preferable to the vacuum drying process and drying in the open air by centrifugalization. The septic fermentation of muds removes all mineral matter from the organic matter, which it converts into gas. This procedure interests only cities with a population of 50,000 or more. Mr. Ginestous described the organization of first-aid stations in the city of Bordeaux, where twenty-five stations have been installed and where special instruction is given to police officers. Mr. J. Reynal presented a popular film on smallpox and its prophylaxis, as prepared for the use of the people of Tunisia.

The Accident Record of Automobile Drivers

The medical examination of automobile drivers, which is intimately associated with the constantly increasing number of automobile accidents, has occupied for some time the attention of the Academy of Medicine. The number of persons who drive an automobile is so great that the idea of requiring all drivers to submit to a special medical examination has been given up, and especially the further plan of requiring periodically a renewal of the examination, which their increasing age would often render necessary. The committee appointed by the Academy of Medicine has recently announced, through its spokesman, Dr. Morax, the conclusions that it reached and that the academy immediately approved. It recommends that a medical examination be required at least of every person who, as a result of a court trial, has received a sentence for his participation in an accident, in order to determine the physical or mental defects of the driver concerned. It demands, in a formal manner, that every automobile driver be provided with a book in which shall be kept a record of the nature of a court sentence, together with infractions of regulations and the results of a medical examination, on the basis of which the driver may be deprived of the right to drive. For drivers of busses and public cars, the city of Paris already requires a medical certificate, also a new examination after each accident. A special service established at the prefecture of police in Paris, of which Dr. Tanon, professor of hygiene at the Faculté de médecine de Paris, is the director, exercises strict control over these matters. An attempt is being made to apply the same ruling to the drivers of all taxicabs, but an understanding with the companies has not been reached.

BUDAPEST

(From Our Regular Correspondent)

Oct. 22, 1930.

German Congress on Metabolism Held in Budapest

The German Society of Diseases of Digestion and Metabolism elected for this year's president Baron Alexander Koranyi of Budapest University. As a token of appreciation, the society broke the custom of holding the annual congress alternately in Vienna and in Berlin by selecting Budapest. The prospects for the success of the congress were not encouraging. The economic misery prevailing in Germany was felt at the recent congress of German naturalists and physicians, where the number in attendance lagged much behind that of former congresses. Despite these unfavorable auspices, the Budapest congress exceeded expectation, thanks to excellent management and the interesting scientific material discussed. The congress, which met October 6-8, was opened by Count Klebelsberg, the Hungarian minister of public instruction, with an address entitled "The Cultural Efforts of Hungary," in which the movement was described that resulted in wonderful progress in the medical sciences during the second half of the nineteenth century. During that period administrators and philanthropists regarded it as their noblest task to cherish culture. With them vied government bodies, which erected schools, laboratories and clinics. Klebelsberg expressed confidence that the united strength of the Germans and Hungarians will be able to restrain the destructive forces threatening Europe from the East. The minister and his wife held a reception in the national casino, which furnished an occasion for the guests to form the acquaintance of leading Hungarian scientists.

The scientific work of the congress continued for three days. To avoid discursiveness, the discussions were restricted to one subject each day. On the first day, Vogt of Munich, von Bergmann of Berlin, H. H. Berg of Berlin and Verebely of Budapest discussed changes of form and position of the digestive tract with especial reference to ptosis. Von Bergmann and Verebely stated that the development of technic in fluoroscopy allows deeper inspection into the abdominal organs so that at present it is possible to ascertain, in vivo, changes in form and displacement. Fluoroscopy reveals alteration from the normal anatomic disposition and form of organs, thereby enabling the physician to establish the proper diagnoses and eventually also the indications for surgical intervention. In contrast with this, Bergmann emphasized that the various ptoses and changes of form cannot be regarded as diseases, and that patients are needlessly frightened and worried by changes referring to the sinking and form of intestinal organs, which changes, per se, are not conducive to functional disturbance. Verebely said that, in changes of form and displacement, surgical intervention should be resorted to only when the changes are confined to certain fixed single organs when the patients cannot be helped by any other method of treatment. Several authors demonstrated, by lantern slides, extreme change of place and form that may be observed in abdominal organs without resulting in any pathologic condition. Professor Diedrich of Budapest exhibited a patient in whom a part of the stomach entered an inguinal hernia without disturbing the functioning of the stomach.

Great interest was centered on the theme of the second day. The relation of diseases of the bones to calcium metabolism, internal secretion and vitamines. Fürth of Vienna lectured on the rôle of the epithelial bodies in calcium metabolism, on parathyroid extract-Collip, on the influence of the thyroid gland, the hypophysis, the thymus and the sexual glands on the developments of bones, and on the curative effect of viosterol on rickets. Wieland showed that in Europe 80 per cent of all infants suffer from rickets. While the treatment of rickets used to require months, it now yields after a few weeks of treatment. He cited recent publications which indicate that shortly the poisonous component of viosterol will be separable from the curative one. Then an entirely safe drug will be available. He stated also that the League of Nations is going to establish international units for vitamin D.

Marek and Wellmann of Budapest reported interesting animal experiments. By feeding a whole series of animals with foods deficient in calcium and phosphorus, they succeeded in causing osteitis fibrosa in rabbits, horses, pigeons, pigs, dogs and cats. Experimenting with diverse therapeutic methods to cure the fibrous osteitis, they found that nothing approaches in efficacy the irradiation of the foods, not even the irradiation of the animals themselves.

The problem discussed on the third day was the inflammation of the digestive organs. From the point of view of the internist and bacteriologist, Löwenberg of Berlin said that the bacterial content of the intestine is related to inflammatory disorders of the abdominal organs. The same bacteria are interacting, and the colon and its germ content play an important part in inflammatory conditions of the digestive organs. He lays stress on this, as American authors are prone to relate these inflammatory conditions to purulent inflammations of the tonsils and teeth. The question was elucidated from a surgical point of view by Kaufmann of Berlin, who pointed to those causes which, besides bacteria, may provoke pathologic processes in the digestive organs. For instance, it is admitted by leading clinicians that, in setting up an appendicitis, disturbances of motility, as well as hematogenous infections, may be involved. Similar causes may provoke gastritis and inflammations of the gallbladder. Veil of Jena pointed to the rôle of the nervous system in the production of morbid states in the digestive tract. Westphal of Hanover demonstrated by lantern slides the stimulating and paralyzing action of the vagus nerve on the movements of the appendix. Einhorn of New York demonstrated the bloodless method of dilating the pylorus. Soos of Budapest showed to the foreign guests the dietetic kitchens of the Budapest clinics and explained the individual preparation of dishes, as inaugurated by himself. Professor Dalmady of Budapest took the guests to the curative springs of the Hungarian capital and made known the indications for their use. The Royal Hungarian Opera gave a gala performance in honor of the foreign guests; the city of Budapest entertained them at a banquet in the Hotel Gellert. The members of the congress were invited to the agricultural exhibition, where the different wines of Hungary were presented to them in decorative baskets. The German Societies of Budapest gave a soirée. The women's committee, working under the presidency of Madame Countess Klebelsberg, wife of the minister of public instruction, entertained the ladies who accompanied the members. After the congress ended, some of the members visited the new biologic institute at Tihany, while others were guests of the minister of agriculture in Lillafured, the picturesque health resort, erected recently by the Hungarian government.

BELGIUM

(From Our Regular Correspondent)

Oct. 20, 1930.

Congress of Gynecology and Obstetrics

During the extraordinary session of the Société belge de gynécologie et d'obstétrique, held at Liége, under the chairmanship of Professor Brouha, three official papers were presented.

The first topic, "The Prognosis of Low Cesarean Section," was presented by Professors Brouha of Liége and Brindeau of Paris. Professor Brouha points out that the results have not been especially good. The record for low cesarean section may be summed up as follows: 4 per cent of mortality and 22.5 per cent of serious morbidity. This intervention, while it presents many advantages, remains a serious operation that should not be resorted to without careful deliberation. From the remote point of view, Professor Brindeau stated that the prognosis of low cesarean section is less grave than the abdominal method. The resulting scar is more elastic and it rarely ruptures during a later pregnancy. Serous adhesions are exceptional; they seldom involve the intestine. Fistulas are rare. Later pregnancies usually develop favorably; the women can undergo the test of labor without great danger. A repeated low cesarean operation is comparatively simple; at the most, adhesions of the old scar, in the wound or in the bladder, may cause trouble.

CANCER OF STUMP OF UTERUS FOLLOWING SUBTOTAL HYSTERECTOMY

The second topic, "Development of Cancer of the Neck of the Uterus Following Subtotal Hysterectomy," was discussed by Dr. Robert Monod of Paris. The author brought out: 1. It appears from statistics collected in cancer centers that the development of cancer in the stump is more frequent than is supposed. 2. Theoretically, while the predisposition of the stump to cancer as a result of subtotal hysterectomy or the presence of a fibroma is not demonstrated, the discovery of a fibroma can no longer be regarded as evidence of a benign type. The belief of the older authors in the amelioration of fibromas coincident with the menopause must be discarded. Immediately following the menopause is when transformations of fibromas into malignant tumors are most frequent and when the development of cancer in the stump of the uterus is most to be feared. 3. Practically, however, the improvements in the technic of subtotal hysterectomy proposed to diminish the danger of cancer in the stump are all defective. The excess of operative deaths ascribable to the increased use of total hysterectomy will be fewer, in skilled hands, than the number of cancers that will be prevented from developing. 4. Radium therapy is best for these cancers. The use of external treatment from a distance (bombardment) appears to be preferable to local treatment.

PUERPERAL ANTIGENIC INFECTION

The third topic, "Puerperal Antigenic Infection," was opened by Dr. Hamm of Strasbourg. The author recalled that the danger today comes more from within than from without. He opposes the exaggerated statement of Metzger: "We are coming to a time when there should be no more deaths from puerperal infection." The bacteriologic research of the twentieth century seems clearly to refute that statement. It conforms more to experimental and clinical realities to confine our ambitions to realization of the time foreseen by Semmelweis "when cases of puerperal infection will become exceptional." This appears to the author the best conclusion of this bacteriologic study, which supports the melancholy reflection of Brindeau: "No woman at confinement is sure of escaping an infectious complication. It must be admitted that here lies the point of gloom in our obstetric art."

Dr. Voron of Lyons groups under the name of autogenous infections those that do not have their origin in external contamination and that are consequently due to a micro-organism located in or on the body of the patient. The clinical aspect of the disorder cannot furnish the scientific proof of the existence of these infections, but it shows us that there are a number of infected persons in whom it is logical to admit that micro-organisms exist either in the genital tracts or at the site of an intragenital focus of infection. It is probable that they constitute an important part of the puerperal fevers that have persisted in the maternity hospitals in spite of the rigorous use of antiseptic measures. On the other hand, their rarity as compared with the total number of confinements in the hospital services, taken with reference to the great frequency of the causes that may produce them, leads to the belief that their appearance is conditioned much more by the variations in the local and general resistance of the parturients than by the virulence of the causative agent. Autogenous infections, whatever may be their frequency, comprise a great majority of cases of moderate gravity but also a few exceptionally grave cases. The prophylaxis of autogenous infections must consider chiefly the terrain. An endeavor must be made to maintain the resistance and to strengthen the defenses of the organism against the offending agent. All the efforts of the clinic and of the laboratory must be directed toward the discovery of the best means of effecting humoral or local immunity of the parturients toward infections post partum.

Effects of Law Limiting Sale of Alcohol

Mr. Vervaek has an article in the *Revue internationale contre l'alcoolisme* that points out the good effects of the law which prohibits the sale of brandy in public places and which followed the decree of Nov. 15, 1918, prohibiting the manufacture and sale of brandy or wine with more than a 15 per cent alcohol content, and of beer with more than an 8 per cent alcohol content. The less drastic law of 1919 maintains the prohibition of the sale at retail of brandy and subjects the dispensing of other beverages to severe regulations The prohibition against the sale of brandy applies to hotels, pleasure resorts, stores, boats, dining cars, work shops and work yards. Trade in alcoholic beverages containing under 18 per cent alcohol is unrestricted. Import duties and consumption taxes have been made four times as high as they were previously. Energetic measures have been employed to prevent the operation of clandestine stills. The law has one grave defect—the regulations applicable to clubs. Clubs are authorized to dispense brandy to their members. The result of this tolerance has been that numerous clubs, frequented by all classes of society and whose *raison d'être* is solely the opportunity of supplying brandy to their members, have been founded.

In general, the law has resulted in reducing the consumption of brandy per capita to one third of the prewar consumption. The consumption of beer has likewise decreased. While the consumption of wine has nearly doubled, the total quantity of wine consumed is still insignificant. The number of places dispensing alcoholic beverages has been reduced one half. There is, however, an increase in the number of places dispensing alcoholic beverages in quantities of from 2 to 6 liters (18,000 in 1927 as against 14,000 in 1914).

Admissions to the hospitals for accidents occurring in a state of drunkenness, or by reason of alcoholism, have been diminished. The psychopathic hospitals note a reduction in the admissions for alcoholic psychoses. The charitable institutions render aid to only one third as many vagabonds and beggars as they did before the war. In the cities and in the rural districts, intoxicated persons are encountered much less frequently. Arrests for drunkenness and for misdemeanors arising therefrom have diminished considerably, in spite of the increase of the population. The proportion of alcohol addicts among persons held in custody is lower than it was ten years ago. The adjoined tabulation gives a survey of the present situation.

	Average from	
	1908 to 1913	1920 to 1925
Persons held in custody previously punished for drunkenness in public.......	6,912	3,742
Persons in custody who were intoxicated when their misdemeanor was committed	4,904	3,084
Persons in custody who were occasional drinkers	553	149
Persons in custody who were habitual drinkers	4,351	2,935

The testimony is unanimous as to the beneficent influence of the law of 1919 on family life, general health, professional work and social life.

BERLIN

(From Our Regular Correspondent)

Oct. 27, 1930.

Congress on Metabolism

The tenth session of the Deutsche Gesellschaft für Verdauungs- und Stoffwechselkrankheiten was held in Budapest, the early part of October, under the chairmanship of Professor von Koranyi.

Professor Strauss of Berlin discussed "The Provision of Proper Diet for Patients," a practical demonstration of which was organized in Budapest by Privatdozent von Soos. In place of the former system, in which every clinic had its central diet kitchen, one central diet kitchen provides the diets for all the university clinics. The food is sent to the distributing centers in the respective clinics. Each distributing center is in charge of a nurse skilled in dietary management. In fact, a considerable portion of the special dishes is prepared in the distributing center. In place of the "menu" system used in other clinics, à-la-carte menus have been introduced. Every morning the menu for the day is brought to the patient, and he selects the dishes that he desires, keeping within the range of the diet that his physician has prescribed. As Professor Strauss pointed out, in emphasis of the distinct advance that characterizes this system, in place of a garrison-like system is one that affords satisfaction to all patients. Great care must be given to the training of the directress of the central diet kitchen and also of the aids in charge of the distributing centers.

Papers on "Bone Diseases in Their Relations to Calcium Metabolism, Internal Secretion and the Vitamins" were presented by the pathologists v. Furth of Vienna and Pick of Berlin; Alwens, internist, of Frankfort-on-Main, and Wieland, pediatrician, of Basel. Whereas formerly nutritional disturbances were chiefly incriminated as responsible for the genesis of rickets, it was learned later that light has a significant rôle. These researches were crowned by the isolation of vitamin D and a knowledge of the value of viosterol, which permits the cure of every case of recent uncomplicated rickets within four to eight weeks; formerly cod liver oil treatment required at least four to eight months. In many cases, however, cod liver oil is not superfluous, since, in addition to vitamin D, it contains also vitamin A. But it must be emphasized that manufactured vitamin preparations must be used with caution; for, in too large quantities, they may produce symptoms of hypervitaminosis and pathologic calcification. They should not be used for every "general weakness," but only when the indications are unequivocal, and only in accordance with a medical prescription.

Dr. Löwenberg of Berlin, Professor Löhr of Kiel and Professor Kauffmann of Berlin presented, on the third day, papers on "Inflammations of the Digestive Organs." The question as to the influence of bacteria on the genesis of appendicitis is still as unsettled as in many disorders of the liver and the bile ducts. Following inflammatory conditions of the throat, there may develop inflammations of the gallbladder, the appendix and other internal organs, and with every recurrence, further irritation symptoms may appear in organs previously impaired by former disorders. The trend of belief is that such recurrences are not due to the action of bacteria or their toxins but to protein decomposition products, which exert a toxic action on previously damaged areas. For the treatment of extremely severe conditions of intestinal inflammation blood transfusions have been employed, of late, with excellent results.

The congress was well attended both by Hungarian and by foreign physicians. On the occasion of the tenth session, Prof. Baron von Koranyi of Budapest, Prof. Knud Faber of Copenhagen, Prof. Hijmans van den Berg of Utrecht, Dr. E. P. Joslin of Boston and Dr. Max Einhorn of New York were elected to honorary membership. The next session will be held in Vienna in September, 1931, under the chairmanship of Professor Falta.

A Film on Tissue Cultures

Dr. A. Fischer of Copenhagen, at present doing research work, on invitation, at the Kaiser-Wilhelm-Institut für Biologie in Dahlem, near Berlin, showed recently a film that dealt with the author's special line of work, the cultivation of tissues. Some of the cultures that he showed dated back eighteen years. Such a prolonged existence can be secured only by frequent washing and frequent renewal of the culture medium. The photographs showed the living cultures with their activities, their growth, their cell division and the active motions in the interior of the cells. Particular interest attached to the sarcoma and the cancer cultures, in which the active and malignant growth could be followed in the minutest detail; also to the observation of wound repair in an injured segment of tissue.

The Society of German Neurologists

The annual session of the Gesellschaft deutscher Nervenärzte was held, this year, in Dresden. The chief topic on the program was "Therapeutisches und Praktisches zum Problem der Restitution im Nervensystem." Boeke of Utrecht treated the subject from the anatomic, Spatz of Munich from the anatomicopathologic, Matthaei of Tübingen from the physiologic, and Foerster of Breslau and Goldstein of Berlin from the clinical point of view. Considerable interest was awakened by the statements of Foerster concerning the restitution of motility and sensitivity. Boeke gave a clear presentation of the present status of research on certain fundamental problems of regeneration in the peripheral and central nervous system. Spatz discussed the morphologic bases of restitution in the central nervous system; Matthaei, the functioning of the central nervous system in experimental interventions on the organism, and Goldstein demonstrated with clinical material that the nature of the restitution is dependent on the influence of four factors: (1) the total capacity of the organism before the onset of the disorder; (2) the greater or less intactness of the whole organism; (3) the amount of energy available for a performance; (4) the environment in which the damaged organism moves. The "totality" must be considered; "catastrophal" reactions must be avoided; in a therapeutic sense, an attempt should never be made to relieve a certain disturbance viewed by itself, but it should always be considered with reference to its significance in relation to the totality of functions that the organism, by reason of its nature, is expected to perform. In the discussion that followed the presentation of the papers, von Weizsäcker of Heidelberg pointed out that we can never examine and analyze scientifically the synthesis of the performances but only the involution. In his closing remarks, during the discussion, Foerster evidently aroused and displeased with the theories and attempted explanations of Goldstein and v. Weizsäcker, expressed himself somewhat as follows: "If, of several members that perform a task jointly (form a working merger), one member drops out, and then, after initial complete abeyance of performance on the part of the complex group, the remaining members of the group take up again the performance of the task, I cannot see why one may not say that the remaining members have taken over the task laid down by the departing member of the group. That is intelligible, and I cannot understand why any one should object to such a mode of expression. Von Weizsäcker and Goldstein say we cannot consider by itself the function of a single portion of the nervous system. If I observe that on stimulation of a peripheral nerve the muscles innervated by it contract, and if, furthermore, I note that after section of this nerve the aforementioned muscles cannot be made to contract through stimulation of the central nervous system, I cannot comprehend why we should not be justified in saying that it is the function of the aforementioned peripheral nerve to innervate the muscles in question. This terminology is certainly centuries old, and if we are to be asked to give it up because some one says it is untenable, may I ask that we be given something in its place that we can understand and that we can then discuss. We can observe not only involution processes (as v. Weizsäcker would limit us) but we can analyze and attempt to explain also synthetic processes. We can from such observations make deductions with reference to the performances of the nervous system. Von Weizsäcker has stated that in our presentations we furnished no scientific proof that the assumption of purposefulness is necessary. I did not claim to have furnished such proof. I declared expressly that, in endeavoring to explain the restitution processes, I constantly reached a point from which further advance seemed impossible, and that personally I could not explain the processes without the assumption of a principle of purposefulness. That was a purely personal confession; I made it plain that it was a concession to my inability to proceed further. It was not my intention to impose this conception on any one."

Of the nonofficial papers, mention may be made of that of F. Kino of Frankfort-on-Main on "Reflex Disturbances Due to Violent Disturbance of the Central Nervous System." In 13 per cent of all cases of pure, recent commotio cerebri there were changes of the reflexes in the lower limbs, doubtless an expression of the mildest type of commotio medullae spinalis; also in mild concussions of the brain attention should be paid to symptoms occurring in the spinal cord. M. Minkowski of Zurich found in eight out of eleven cases of epilepsy pronounced changes in the inferior olivary nucleus. These changes are, however, neither specific nor pathognomonic for epilepsy. K. M. Walthard of Zurich discussed "The Significance of the Psychic Attitude in Relation to the Anatomic Defect." In a film a number of persons were shown who, in spite of irreparable anatomic defects of the extremities, were in the habit of performing normal laborious tasks as housewives or laborers. These persons with healed defects are induced constantly to exercise, develop and transform their capacities, for the most part, through considerations of a clearly thought out type and involving many strong emotions. Their performances, therefore, must not be conceived of merely as substitute performances but as hypercompensations. The seriousness of the anatomic defect is not necessarily decisive for the lasting functional results. With the cooperation of the social welfare centers, the physician should endeavor to induce persons with healed defects to resume their former relations with their environment.

The Weinberg Medal

As an expression of the esteem in which Geheimrat Dr. Arthur von Weinberg, who for many years has served as chairman of the Deutsche Gesellschaft für Gewerbehygiene, is held, that society has founded, in honor of his seventieth birthday, an Arthur von Weinberg medal, which will be bestowed, when occasion warrants, on persons who, in either the scientific or the practical field, have performed meritorious services in the domain of industrial hygiene. At the annual session of the society in Breslau in September, the first series of medals was awarded as follows: Dr. Geib, secretary of the federal ministry of labor (Berlin); Dr. Hamel, president of the federal bureau of health (Berlin); Prof. Dr. Curschmann, Wolfen; Gustav Haupt, Hanover; Geheimrat Prof. Dr. K. B. Lehmann, Würzburg, and Geheimer Oberregierungsrat Dr. Leymann, Berlin.

Geheimrat Eduard Dietrich Honored

On October 10, Wirklicher Geheimer Obermedizinalrat Prof. Dr. Eduard Dietrich, formerly "ministerial director" and head of the medical department of the Prussian ministry of public welfare, celebrated his seventieth birthday. The medical profession honors him because few men have done more for the advancement of the public health of Germany. In the beginning of his career, while serving as district health officer, he organized movements within his jurisdiction, improving the midwife service. In collaboration with Rapmund, he published a highly esteemed work "Aerztliche Rechts- und Gesetzeskunde." Through extension of the field of social hygiene, he gave a new impetus to the central administration of medicine. Not only in scientific fields but along practical lines, he brought about advancement—for instance, in the promotion of public hospitals and public bathing establishments; the care of cripples and the promotion of infant welfare, and, of late years, in aid of the crusade against rheumatism.

Marriages

Brewster Arthur Hopkins, Petersburg, Va., to Miss Margaret Lettie Harris, in Cullen, October 18.

Pompeo S. Milici, New Haven, Conn., to Miss Margaret Thelma Koren of Passaic, N. J., May 8.

Edward B. Vogel, Bellevue, Ohio, to Miss Margaret E. Ruffing of Rochester, N. Y., in October.

LeRoy Warren Saunders, Baltimore, to Miss Dorothy Perkins of Catonsville, Md., November 8.

Donald Bain Moore, Badin, N. C., to Miss Emmie Anderson Brown of Albemarle, October 17.

Arthur W. Records, Franklin, Ind., to Miss Ruth Ann Merritt, in Cincinnati, October 7.

Frank M. Faries to Miss Etta Lee Gray, both of Paris, Ky., in Lexington, August 7.

William Hay Young to Miss Josephine Sheedy, both of Fredonia, Kan., June 3.

Lucius Lester Hutchens to Miss Nedra Johnson, both of Flora, Ill., October 17.

Deaths

David Nichols Dennis ⊕ Erie, Pa.; Jefferson Medical College of Philadelphia, 1881; member of the House of Delegates of the American Medical Association, 1908, 1917, 1918 and 1919; past president of the Erie County Medical Society; member of the American Academy of Ophthalmology and Oto-Laryngology, American Ophthalmological Society and the American College of Surgeons; for many years member of the staff, board of corporators, board of managers and president of the board of managers of the Hamot Hospital; aged 71; died, suddenly, November 15.

Leo John Dretzka ⊕ Detroit; Milwaukee Medical College, 1912; associate professor of surgery, Detroit College of Medicine and Surgery and professor of surgery, Detroit Post-Graduate School of Medicine; served during the World War; member of the American College of Surgeons; on the staffs of the City of Detroit Receiving Hospital, St. Mary's Hospital and the Woman's Hospital where he died, October 12, of a streptococcic infection as the result of an injury, aged 42.

Robert Tarleton Sloan ⊕ Kansas City, Mo.; Medical Department of the University of the City of New York, 1885; past president of the Jackson County Medical Society; formerly professor of internal medicine and head of the department, University of Kansas School of Medicine; aged 69; on the staffs of St. Luke's Hospital, St. Joseph's Hospital and the Research Hospital, where he died, October 22, of carcinoma of the gallbladder with metastasis to the liver.

Arnold Steven Taussig ⊕ Denver; Gross Medical College, Denver, 1891; Medical Department of Washington University, St. Louis, 1893; past president of the Denver County Medical Society; member of the American College of Physicians; served during the World War; on the consulting staff and since 1922 chairman of the medical advisory board, Sanatorium for the Jewish Consumptives' Relief Society, Spivak; aged 60; died, October 11.

Edward Franklin Leonard ⊕ Chicago; Harvey Medical College, Chicago, 1902; College of Physicians and Surgeons, Chicago, 1903; member of the American College of Physicians; formerly assistant professor of neurology, University of Illinois College of Medicine; on the staff of the Grant Hospital; aged 58; died, October 31, of heart disease.

Wisconsin Illinois Royster, Raleigh, N. C.; Bellevue Hospital Medical College, 1869; member of the Medical Society of the State of North Carolina; formerly professor of medicine, University of North Carolina School of Medicine, and professor of the practice of medicine, Leonard Medical School; aged 85; died, October 24.

Horace Frank Stiltner ⊕ Windrock, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1909; past president of the Anderson County Medical Society; served during the World War; aged 55; died, October 22, in St. Mary's Hospital, Knoxville, of injuries received in an automobile accident.

William B. Bowman ⊕ Los Angeles; St. Louis University School of Medicine, 1910; member of the American College of Physicians, American Roentgen Ray Society, Radiological Society of North America and the American College of Radiology; aged 45; died, October 20, of coronary thrombosis.

Benjamin S. Herring, Wilson, N. C.; University of Michigan Medical School, Ann Arbor, 1900; member of the Medical Society of the State of North Carolina, and the American College of Surgeons; medical director of the Moore-Herring Hospital; aged 53; died, October 6, of tuberculosis.

Addison L. Stump, Derby, Ohio; Starling Medical College, Columbus, 1896; member of the Ohio State Medical Association; county health commissioner; formerly member of the state legislature and county board of education; aged 68; died suddenly, October 19, of heart disease.

David Newton Jones ⊕ Long Beach, Calif.; Rush Medical College, Chicago, 1890; formerly mayor of Gaylord, Minn., and superintendent of the hospital; member of the Minnesota State Board of Medical Examiners, 1896-1898; aged 74; died, October 24, of uremia.

Charles Henry Ludlum ⊕ Hempstead, N. Y.; Medical Department of the University of the City of New York, 1865; for many years member and president of the board of education; aged 87; died, October 12, of mitral stenosis, arteriosclerosis and chronic nephritis.

Edwin Price Vaughan, Hillsboro, Texas; University of Louisville (Ky.) School of Medicine, 1908; member of the State Medical Association of Texas; for six years city health officer and for four years county health officer; aged 52; died, August 12.

William Tassie Wilson, Dundas, Ont., Canada; Victoria University Medical Department, Coburg, 1892; member of the American Psychiatric Association; formerly medical superintendent of the Ontario Hospital, Cobourg; aged 62; died, August 2.

Charles E. Zerfing ⊕ Los Angeles; University of Pennsylvania School of Medicine, Philadelphia, 1895; member of the American College of Surgeons; aged 57; died, August 31, in the Queen of Angels Hospital, of chronic diffuse nephritis.

Harvey T. Billick, Monongahela, Pa.; College of Physicians and Surgeons, Baltimore, 1885; formerly mayor, member of the city council and the school board; aged 79; died, September 22, of chronic myocarditis and acute gastritis.

Enoch T. Jones, Hampton, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; member of the Arkansas Medical Society; past president of the Calhoun County Medical Society; aged 62; died suddenly, October 1, of heart disease.

Jesse Munroe Anderson, Columbus, Ga.; University of Georgia Medical Department, Augusta, 1899; member of the Medical Association of Georgia; aged 55; died, October 12, in Asheville, N. C., of pulmonary tuberculosis.

John W. Ragsdale, Smithville, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; American Medical University, Kansas City, 1920; aged 44; died, August 13, in the Sumter County Hospital, Americus.

George Lester Hoege, Sarasota, Fla.; University of Wooster Medical Department, Cleveland, 1870; for many years member of the board of health and school board of Fostoria, Ohio; aged 83; died suddenly, October 6.

Garnet Woolsey Holmes, Chatham, Ont., Canada; University of Toronto Faculty of Medicine, 1898; aged 56; died, recently, at the Public General Hospital, of heart disease, following an operation for appendicitis.

George Chapin Jenkins, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1896; formerly on the staff of the Abington (Pa.) Memorial Hospital; aged 56; died, October 24, of heart disease.

George Wesley Green ⊕ Ely, Nev.; University Medical College of Kansas City, Mo., 1904; past president of the White Pine County Medical Society; aged 53; died, October 20, of heart disease and carcinoma.

Benjamin George Stephenson, Toronto, Ont., Canada; University of Illinois College of Medicine, Chicago, 1912; University of Toronto Faculty of Medicine, Toronto, Ont., 1918; aged 48; died, August 28.

John Charles McDonald, Little York, P. E. I., Canada; McGill University Faculty of Medicine, Montreal, Que., 1905; served during the World War; aged 55; died, July 15, of carcinoma of the stomach.

Jesse Pickrell Simpson ⊕ Palmer, Ill.; Missouri Medical College, St. Louis, 1899; served during the World War; member of the school board; aged 61; died, October 21, of carcinoma of the liver.

David Livingstone Heggie, Brampton, Ont., Canada; University of Toronto Faculty of Medicine, 1890; L.R.C.P., Edinburgh, L.F.P.S., Glasgow, Scotland, 1891; aged 62; died, August 17.

W. H. Olmstead, Taylor, Pa.; Columbus Medical College, 1890; member of the Medical Society of the State of Pennsylvania; aged 68; died, September 12, of arteriosclerosis and nephritis.

Margaret Gardner Forrest Hogg, Vancouver, B. C., Canada; University of Glasgow Medical Faculty, Glasgow, Scotland, 1907; died, June 25, as the result of an automobile accident.

Herman Sheldon Farr, Madrid, Iowa; State University of Iowa College of Medicine, Iowa City, 1881; aged 77; died, October 20, of cerebral hemorrhage.

Joseph Pierre Gadbois, Montreal, Que., Canada; Laval University Faculty of Medicine, Quebec, Que., 1892; aged 62; died, August 22, of pneumonia.

Arthur Gunn, Weston, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1895; aged 57; died, August 15.

John Brewer Gilchrist, Norton, N. B., Canada; Bellevue Hospital Medical College, New York, 1891; aged 65; died, August 17.

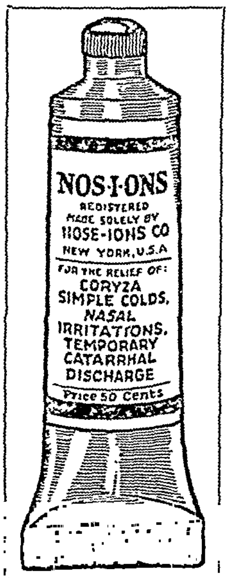
Bureau of Investigation

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Knewitz's Stopake Powders.—G. Knewitz of East St. Louis, Ill., shipped in January, *1929,* into Missouri a quantity of Knewitz's Stopake Powders that were declared adulterated and misbranded. The preparation was found to consist of capsules, each containing essentially 3 grains of acetanilide and 6 grains of aspirin. It was declared adulterated because the product was labeled as containing 3½ grains of acetanilide per dose. It was declared misbranded for the same reason and, further, because the curative claims, that it was a remedy for neuralgia, toothache, rheumatism, backache, earache, women's pains, etc., were false and fraudulent. In June, *1929,* judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16868; issued July, 1930.*]

Mentho-Mustard. — The Mentho-Mustard Company of Athens, Ga., shipped to Florida in December, 1928, a quantity of Mentho-Mustard that was declared misbranded. Analysis showed the product to be an ointment with a base of the consistency of petrolatum, containing small amounts of volatile oils including mustard oil, camphor, menthol, and wintergreen. The therapeutic claims that the preparation was a remedy for influenza, rheumatism, bronchitis, croup, asthma, pneumonia, and various other conditions were declared false and fraudulent and in October, *1929,* judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment 16853; issued July, 1930.*]

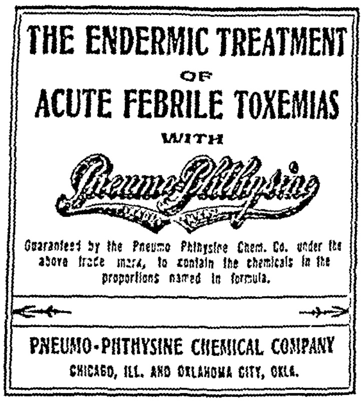


Nos-I-Ons.—The Nos-I-Ons Company of Brooklyn, N. Y., shipped in March, *1929,* to New Jersey a quantity of Nos-I-Ons that was declared *misbranded.* Government analysts reported that the product consisted essentially of petrolatum, quinine sulphate, salicylic acid, camphor and eucalyptol. The claims on the trade package, to the effect that it was a remedy for catarrh, grippe, bronchitis, hay fever, measles, scarlet fever, etc., *and was good for scalp and skin diseases,* were declared false and fraudulent. In September, *1929,* judgment of condemnation and forfeiture was entered and the court ordered that the product be released to the Nos-I-Ons Company on payment of costs and the execution of a bond conditioned in part on the truthful relabeling of the preparation. — [*Notice of Judgment 16776; issued May, 1930.*]

Foley's Cold and Grippe Tablets.—Foley and Company of Chicago shipped in January, *1929,* to Wisconsin a quantity of Foley's Cold and Grippe Tablets that were declared misbranded. The preparation was found to consist essentially of acetanilide and cinchonine compound, red pepper and an extract of a laxative plant drug. The claim that it was a remedy for influenza and neuralgia was declared *false and fraudulent* and in June, *1929,* judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16863; issued July, 1930.*]

McLean's Tar Wine Cough Balm.—The Dr. J. H. McLean Medicine Company of St. Louis, Mo., shipped into Kansas in November, 1928, a quantity of Dr. J. H. McLean's Tar Wine Cough Balm that was declared misbranded. The product was found to consist *essentially of small amounts of extracts of plant drugs, including licorice, wood tar,* sugar, alcohol and water. The claims that the preparation was a remedy for influenza, coughs, spasmodic croup, etc., were declared false and fraudulent, and in June, 1929, judgment of condemnation *and forfeiture was entered* and the court ordered that the product be destroyed.—[*Notice of Judgment 16874; issued July, 1930.*]

Pneumo-Phthysine. — The Pneumo-Phthysine Chemical Manufacturing Company *of Chicago shipped in February, 1929,* into Missouri a quantity of Pneumo-Phthysine that was declared misbranded. The preparation was essentially a clay poultice, containing glycerine, creosote, small amounts of guaiacol, oil of wintergreen, formaldehyde, and a quinine compound. The claims that the preparation was a remedy for acute fevers, mastitis pharyngitis, tonsillitis, coughs, typhoid fever, etc., were declared false and fraudulent. In July, 1929, the Pneumo-Phthysine Chemical Manufacturing Company appeared as claimant, judgment of condemnation was entered, and the court ordered that the product be released to the claimant to be truthfully relabeled upon the execution of a good and sufficient bond.—[*Notice of Judgment 16864; issued July, 1930.*]


THE ENDERMIC TREATMENT
OF
ACUTE FEBRILE TOXEMIAS
WITH
Pneumo-Phthysine
Guaranteed by the Pneumo Phthysine Chem. Co. under the above trade mark, to contain the chemicals in the proportions named in formula.
PNEUMO-PHTHYSINE CHEMICAL COMPANY
CHICAGO, ILL. AND OKLAHOMA CITY, OKLA.

[In April, 1929, "Pneumo-Phthysine" became "Numotizine."]

Williams' 101 Tonic.—The Interstate Drug Company of Quitman, Ga., shipped in January, 1929, into Florida a quantity of Dr. Williams' 101 *Tonic that was declared misbranded.* The preparation was found by the federal chemists to consist essentially of epsom salt, quinine sulphate (about 5 grains to the fluid ounce), ferric chloride and glycerine. The claims *that the product was a remedy for malaria, influenza,* bilious fevers, etc., were declared false and fraudulent and in October, *1929,* judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16859; issued July, 1930.*]

Solomon Whitfield Smith's Venereal Medicine.—S. W. Smith and Company of Valdosta, Ga., shipped in August, 1928, into Florida a quantity of Solomon Whitfield Smith's Venereal Medicine that was declared *misbranded.* The federal chemists reported that the preparation consisted essentially of turpentine oil, copaiba, copper sulphate (blue vitriol), alcohol and water. The claim that the preparation was a remedy for gonorrhea and syphilis *was declared false and fraudulent, and in* September, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16865; issued July, 1930.*]

Healing Ointment. — The Manhattan Drug Company, Brooklyn, N. Y., shipped into Massachusetts a quantity of Healing Ointment that was declared misbranded. It was found to be an ointment having a petrolatum and wool-fat base, with zinc oxide, boric acid, carbolic acid, sulphur, menthol, and other volatile oils. The claims that it was a remedy for eczema, itch, piles, all skin diseases, etc., were declared false and fraudulent and in September, *1929,* judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16792; issued May, 1930.*]

Rapid Quinine Laxative Cold Tablets.—The G. P. Steyh Importing Company of St. Louis, Mo., *shipped in February,* 1929, into Illinois a quantity of Rapid Quinine Laxative Cold Tablets that were declared misbranded. The tablets were found to contain acetanilide, chalk, baking soda, milk sugar, extracts *of plant drugs,* including a laxative drug, and a small amount of alkaloids, but no quinine. The product was declared misbranded, first, because the label would deceive and mislead purchasers into the belief that the product contained quinine, which it did not; further, the therapeutic claims that the product was a remedy for influenza, fever, neuralgia, malaria, etc., were declared false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16875; issued July, 1930.*]

Vapomentha Salve.—The Rox Chemical Company, Louisville, Ky., shipped in April, 1927, to New York a quantity of Vapomentha Salve that was declared misbranded. Analysis showed it to consist essentially of petrolatum, with turpentine oil, and volatile oils including camphor, menthol and eucalyptus. The claims that it was a remedy for croup, pneumonia, coughs, influenza, asthma, etc., were declared false and fraudulent, and in October, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16795; issued May, 1930.*]

Case's Antiseptic Ointment.—The Case Manufacturing Company of Trenton, N. J., shipped in May, 1929, to Pennsylvania a quantity of Case's Antiseptic Ointment that was declared misbranded. The ointment was found to consist essentially of a tallow base, containing small amounts of carbolic acid and volatile oils, including camphor and sassafras oil. The claims that the product was a remedy for abscesses, sores of long standing, piles, eczema, erysipelas, bunions, pneumonia, caked breast, etc., were declared false and fraudulent, while the claim that the ointment was "made from a combination of oils extracted from herbs, roots and barks" was declared false and misleading. In September, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16871; issued July, 1930.*]

Correspondence

"STAPHYLOCOCCUS TOXIN IN THE TREATMENT OF FURUNCULOSIS"

To the Editor:—Interest in the skin-necrotizing toxin produced by *Staphylococcus aureus*, particularly as to its clinical value in the treatment of recurrent furunculosis when administered hypodermically, led to a summary of an article recently published (Weise, E. C.: Staphylococcus Toxin in the Treatment of Furunculosis, The Journal, August 2, p. 324) in which the following statements were made:

1. The skin-necrotizing toxin produced by *Staphylococcus aureus* was employed in the treatment of chronic furunculosis.
2. Of twenty-four cases treated, nineteen showed an arrest of the furuncles.
3. Two cases of furunculosis in diabetic patients were uninfluenced by the injections.
4. Favorable response to this treatment was noted in other types of staphyloderma.

It is to be noted that a skin-necrotizing toxin produced by *Staphylococcus aureus* was employed. This particular exotoxin produced necrosis when injected intradermally into rabbit skin and could be neutralized by the serum of rabbits immunized to it, neutralization of toxin by antitoxin occurring in multiple proportions.

Recently a communication (The Journal, September 13, p. 815) suggested that a certain amount of correction be made in the statement by Dr. Weise that "in 1928, Greenbaum and Harkins reported inconclusive results from the use of staphylococcus filtrates; but as their filtrate had little toxicity for rabbit skin it could not have contained any considerable amount of the toxin described here." In the same letter it is stated that "Our results were far from inconclusive and our filtrate was of excellent quality." The degree of quality was not questioned. The absence of any considerable amount of the skin-necrotizing toxin was taken, however, as the point of differentiation and these writers clearly state, "Experimentally our filtrate showed little toxicity for rabbit skin" (Greenbaum, S. S., and Harkins, M. H.: Staphylococcus Filtrates in Chronic Staphylococcic Pyodermas, The Journal, May 26, 1928, p. 1699). They also found it unnecessary to use dilutions. On the other hand, the preparation I used was highly toxic for rabbit skin, causing definite necrosis. It was also found necessary to use this preparation in definite dilutions.

Greenbaum and Harkins devoted most of their paper to the reports of intradermal tests on three different classes of patients. They also reported results of treatment of five cases of various pyodermas, only two of which were cases of furunculosis. They further state: "From a therapeutic point of view no definite statement can as yet be made. Only five patients were treated, two for furunculosis, both of whom were relieved for three and five months, respectively," and, further, "The exact dosage for treatment purposes is unknown." Though I realize that the small series of twenty-four cases of furunculosis reported by myself is inadequate to base any far-reaching conclusions on, it is of sufficient value, together with the working dose suggested and the follow-up data, to make at least a tentative therapeutic statement.

Ellwood C. Weise, M.D., Bridgeport, Conn.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

POSSIBILITY OF UNDULANT FEVER TRANSMISSION THROUGH MILK

To the Editor:—Some time ago I read an editorial in which you cautioned the public as to the danger of Bang's bacillus disease or undulant fever, and I ask for your opinion that I may be properly advised in the case described: The undersigned is a member of our city council and months ago the council passed an ordinance requiring persons desiring to sell raw milk either to have their cows tested for Bang's bacillus disease or to mark on the milk bottle caps, "Not tested for Bang's disease." Through the action of one or two raw milk dealers who have admitted that they have disease in their herds, they have filed a statement endeavoring to restrain the council from enforcing that part of the ordinance relating to Bang's disease. The statement by the dealers denies Bang's disease; denies the transmissibility to human beings through the medium of milk; denies any harm or danger from the disease; denies the efficacy of pasteurizing milk so far as it destroys germ activity; denies any and all reliability of test for Bang's disease, and complains of the hardship to the milk dealers in the loss of cattle by testing, and the loss in business by marking the milk bottle caps, "Not tested." Please omit name.

M.D., Pennsylvania.

Answer.—The occurrence of undulant fever in human beings as the result of the ingestion of raw milk containing the organism of contagious abortion has been conclusively demonstrated. While some individuals appear to be naturally immune to the disease and others acquire a relatively mild infection, the majority of patients with undulant fever experience a severe illness. Most investigators have found that the average duration of illness is from three to four months. It has been repeatedly demonstrated that complete, carefully supervised pasteurization will destroy organisms of the *Brucella* group. The agglutination test on the blood or milk-whey is the most reliable procedure available at the present time for the detection of the infection in live stock. In a report of "Recent Progress in Studies of Undulant Fever," by H. E. Hasseltine, Surgeon, United States Public Health Service, which appeared in *Public Health Reports*, July 18, it was stated that "It is probable that less than 1 per cent of infected cows will escape detection by the agglutination test, and these will very likely be found on retests of the herd." The national associations representing the medical milk commissions and the producers of certified milk have already prescribed action for the elimination of infected cattle from herds supplying certified milk. Many milk producers are now pasteurizing certified milk. There is no evidence that the testing of cattle and the segregation of infected animals has worked any great hardship on dairymen. It has been a common observation of veterinarians that cows with *Brucella* infection do not produce as great a quantity of milk as noninfected animals. Hardenbergh, director of

QUERIES AND MINOR NOTES

laboratories of the Walker-Gordon Laboratory Company, Inc., has stated (*J. Am. Vet. M. A.*, March, 1930, pp. 298-306) that cows which are free from *Brucella abortus* infection have consistently produced an average of one quart of milk a day more than cows in the infected group. There is no evidence that the sale of milk and dairy products has decreased in the many communities in which pasteurization has been practiced for many years.

EFFECTS OF SOAP SUDS ENEMAS

To the Editor:—What is the present status, its effect on the rectum and colon, of the use of soap suds or a weak solution of green soap employed as enemas, either high or low?

M.D., Kentucky.

Answer.—An occasional enema of soap suds has its definite indications in some instances, for example, the relief of fecal impaction, the removal of barium sulphate after a fluoroscopic examination or when there is an urgent need for rapid evacuation of the colon. There is no excuse for the repeated use of enemas, day after day, or even less frequently as a means of obtaining evacuations. Such procedures lead to an overdistention of the colon, the development of atony of the musculature of the bowel and in the condition of so-called irritable bowel, often a symptom of some other abdominal lesion, to an increase of the irritability. This manifests itself clinically by digestive disturbances, a feeling of abdominal distention, cramps, increased constipation or alternating constipation and diarrhea. It is far better to relieve constipation by a high residue diet, exercise and the occasional use of a retention oil enema.

EFFECTS OF PROLONGED USE OF ALKALINE POWDERS

To the Editor:—Given a demonstrated case of duodenal ulcer controlled by diet and alkaline powder the formula of which is: precipitated calcium carbonate, 1½ ounces (45 Gm.); sodium bicarbonate, 2 drachms (8 Gm.), and heavy magnesium oxide, 2 drachms (8 Gm.), will the daily use over a period of years of this powder in drachm doses, i. e., 1 drachm (4 Gm.) each twenty-four hours, be more likely to predispose the patient to stone formation or arteriosclerosis than otherwise as time goes on? In other words, is the prolonged use of this powder harmless? Kindly omit my name.

M.D., Utah.

Answer.—The prolonged use of any alkaline powder may be harmful and may lead to kidney changes. Alkalis should not be given indiscriminately without frequent examination of the urine to denote the presence of an alkaline urine and also the presence of albuminuria. If kidney changes do become manifest, arterial changes would necessarily follow.

Regarding the question of urinary calculi, oxalate stones are not uncommon with long continued use of alkalis.

DIAGNOSIS OF CONGENITAL SYPHILIS

To the Editor:—I have a man, aged 44, under my care, who has been troubled with fainting spells off and on for about twenty years. Examination of the blood gave a positive Wassermann reaction. A series of treatments of neoarsphenamine and mercury about one year ago resulted in a negative Wassermann reaction but no marked amelioration of symptoms. I then lost track of him, but he returned to me and I have given him twenty weekly injections of tryparsamide. A blood test taken one week after treatment was discontinued showed a negative Wassermann reaction and a 3+ positive Kahn reaction. From my examination I think that the man's condition is congenital. Any help you can give me will be appreciated. Please omit name.

M.D., Ohio.

Answer.—It is doubtful whether the patient has congenital syphilis. If his fainting spells are the only apparent sign of his disease and they have been of twenty years' duration one should investigate them for the possibility of their being epileptic attacks. The description suggests nothing that might be indicative of central nervous system syphilis, although a spinal puncture might be done to make sure. Neoarsphenamine and mercury would be better drugs to use than tryparsamide for this patient.

POLIOMYELITIS

To the Editor:—I have been taught that the prognosis of a case of poliomyelitis can be determined in the early stages by a cell count of the spinal fluid. Will you please advise me as to the truth of this?

S. Cutter, M.D., Brooklyn.

Answer.—It is probable that the prognosis of poliomyelitis cannot be determined by a study of the cell count of the spinal fluid. In the early stages the pleocytosis is made up of lymphocytes. Later the cell type changes to leukocytes. One can simply state the number of cells, giving an idea of the extent of the meningeal reaction, which is probably related to the amount of parenchymatous damage. But one should be hesitant about making a grave prognosis on the basis of such a criterion.

ANATOMY OF THE EYE

To the Editor:—Would you kindly inform me on the following points of anatomic difficulty (eye): 1. Is the uveal coat of the eye at all adherent to the sclerotic along the line of the ora serrata in man? 2. Is the ciliary muscle at all adherent to the sclerotic in the same region? 3. Is there positive agreement among anatomists that the fibers of the zonule decussate? As regards question 1, it seemed to me that in sheep the posterior ciliary border was to a certain extent glued down to the sclerotic and required more force to separate it here than elsewhere. As regards question 2, Terrien (Le Cristallin, figs. 11, 12, 14, 15 and 91) says that the ciliary muscle is partly attached to the lamina fusca of the sclerotic. Waldeyer, quoted by Gray (Anatomy, p. 1018), and Sattler (Salzmann's Anatomy, p. 224, references 187 and 188) agree, but the location of this attachment requires definition. As regards question 3, Salzmann (Anatomy of the Eyeball, pp. 112 and 224) does not mention decussation. Arthur Thomson (Anatomy of Human Eye, 1912, p. 29 and illustrations) seems skeptical. Retzius (Helmholtz: Physiological Optics **1:** 406, fig. 139; Rauber: Lehrbuch der Anatomie, ed. 2, 1920, Kopsch, fig. 166), Gerlach (quoted by Berger: Encyclopédie française d'ophthalmologie **1:** 361) and Landolt (diagram in Clarke's Refraction, fig. 32, p. 36), however, appear to uphold this view. Gullstrand (Helmholtz: Physiological Optics **1:** 405) assumes decussation. Arthur Thomson's stereoscopic photos do not show it and Cattaneo (Quelques observations sur le mechanisme de l'accommodation, *Ann. d'ocul.* **166:** 48 [Jan.] 1929) could not observe any decussation of the zonular fibers clinically in his cases of aniridia. Piersol's Histology (fig. 408, p. 356) does not show decussation. The fibers of the zonule certainly do not seem to decussate near the lens as Retzius depicts them.

R. A. Yeld, M.D., Edgewood, B. C.

Answer.—1. This question can best be answered by direct quotation from the Kurzes Handbuch der Ophthalmologie **1:** 61, in the section by Eisler on Anatomy of the Human Eye: "The choroid is perforated posteriorly by the optic nerve and here hugs the nerve and the sclera closely by participating in the formation of the lamina cribrosa that transfixes the nerve. Anteriorly it is grown together with the scleral spur and the fibers of the inner wall of the sinus venosus sclerae. Otherwise, the blood vessels and nerves that enter the choroid by perforating the sclera form a firm bond between the choroid and the sclera; in the region of the fovea centralis retinae there is also a rather firm adhesion to be found. Otherwise, the adherence between these two coats is rather loose. A loose external layer of the choroid known as the lamina suprachoroidea and consisting of rather heavily pigmented leaves adheres so firmly to the sclera that no microscopic differentiation is possible and when torn away leaves brown flocculent pigment on the sclera. This was formerly known as the lamina fusca sclerae."

2. No.

3. The consensus among the authors quoted by Eisler in the Handbuch seems to be that there is a decussation of the fibers of the zonule of Zinn. This is further borne out by the embryologic work of Ida Mann. In her book on "Development of the Human Eye," figure 155 clearly shows a definite decussation, although she does not discuss that question specifically.

SIGNIFICANCE IN INFANT OF SLIGHT RISE IN TEMPERATURE

To the Editor—A girl, aged 8 months, of normal delivery, on breast and supplementary feeding of modified cow's milk and a maltose-dextrin preparation, weight 19 pounds (8.6 Kg.), with negative clinical and laboratory observations confirmed by a pediatrician, has had a temperature between 99 and 100 in the twenty-four hours for the past thirty days. The thermometers have been checked up. What causes may be considered for the febrile condition? Please omit name and address.

M.D., Indiana.

Answer.—In these modern days, in which there are one or more thermometers in every household, the baby's temperature is frequently taken once or more daily. It is obviously tru that inflammatory conditions may exist in the body and caus temperature fluctuations in infants and children. Otitis, py litis, inflamed lymph nodes, sepsis, tuberculosis and many oth inflammatory lesions may cause febrile reactions.

On the other hand, there is a large group of children who have persistent slight elevations of temperature which seem to depend more on physiologic and constitutional characteristics than on inflammatory conditions. Not all children have a mean rectal temperature of from 98.6 to 99 F. A certain number of apparently normal infants have a slightly higher temperature. Not a few children who are lively show a slight elevation after exercise, which falls to normal after resting. An elevation of temperature of 1 or 2 degrees which is continuous, of the so-called monothermia type, is of less significance than one in which there are marked daily fluctuations.

Many of the infants and older children who show hyperthermia or some peculiarity of constitution are of the sensitive, neuropathic or vasoneurotic types. They are frequently anemic and asthenic, are easily fatigued, have headaches and perspire profusely.

The point of the whole matter seems to be that a constancy in rectal temperature is expected which does not uniformly exist in all infants and children. It must be assumed that the heat regulating mechanism varies in different individuals. In some it has an unvarying stability, in others a considerable degree of lability. This individual difference undoubtedly frequently explains why so many infants and children have a more or less constant temperature of 99 or 100 during apparently perfect health and why the same children will have 101 or 102 F. for some trivial reason. Sometimes the degrees of fever is influenced by the depth of insertion of the rectal thermometer. The higher the thermometer is inserted, the greater the degree of temperature. It is frequently advisable to compare the axillary with the rectal temperature. Not infrequently the latter will be one or two degrees higher than the former.

The crux of the matter seems to be that a certain group of children show an elevation of rectal temperature somewhat higher than normal over an extended period of time. If every possible pathologic condition is excluded and the baby is otherwise in apparently good health, the use of the thermometer should be discontinued and the slight elevation of temperature disregarded.

DIET FOR A GUINEA-PIG

To the Editor:—Will you kindly inform me regarding the normal diet for a guinea-pig, also whether or not white rats are preferable to guinea-pigs for experimental work on nutrition and pulmonary changes?

M.D., Philadelphia.

ANSWER.—Guinea-pigs do well on a normal diet of carrots or other common vegetables, hay and oats as much as they like. If fresh vegetables are available, water is not necessary. Generally speaking, white rats probably are preferable to guinea-pigs for experimental work on nutrition. As to which animal would be preferable for experimental work on changes in the lungs, nothing definite can be said without some knowledge of the nature of the changes it is proposed to study.

NEGATIVE WASSERMANN AND SYPHILIS

To the Editor.—A man, aged 27, has blotches on his face and, under his nose, a sore that is raised, hard and indurated. It has the appearance of a chancre. As the result of a Wassermann test taken at one laboratory, which reported Wassermann 4 plus and Kahn 4 plus, he was given neoarsphenamine, intravenously 0.45 Gm., and four days later, 0.6 Gm. His face cleared up. He went to a hospital, where some one told him that he did not have syphilis. Wassermann tests taken there and at another laboratory were both negative. Could the prompt intravenous medication eliminate all trace of syphilis with only two injections?

M.D., Chicago.

ANSWER.—The agreement of the Wassermann and Kahn reactions supporting the clinical features of the case make the diagnosis of this case a well established one. It is entirely possible that the neoarsphenamine given, though a small amount, could have cleared up the general infection sufficiently to cause a negative Wassermann reaction for at least a time. The information given at the hospital was not correct. No one can state that a person who has had antisyphilitic treatment and is at the time of examination free from all signs of syphilis is free from the disease. An opinion on this point should be formed only after long study of the case.

ACROPARESTHESIA IN PERNICIOUS ANEMIA

To the Editor:—A woman, aged 65, is suffering with "acroparesthesia" of the hands and feet, particularly of the hands. She has pernicious anemia, from her blood picture, which was as follows: March 6, 1930, hemoglobin, 38 per cent (Dare); red blood cells, 1,520,000, with anisocytosis and poikilocytosis; color index, 1: 2. Under the influence of liver her blood picture grew progressively better. At the same time she has the other symptoms, such as glossitis; before the use of liver she had severe attacks of diarrhea, this having subsided at present. I have not tested for free hydrochloric acid, fearing that this would be too great a strain on her myocardium, which is poor. I would like to have her get some relief from the severe pain, numbness and tingling of her hands and feet. There is no question that she has changes in the cord, and my belief is that these changes were evident before any changes in the blood picture. The reason I say this is that the acroparesthesia is of more than two years' duration and the blood picture was normal one year ago. Please omit name.

M.D., New York.

ANSWER.—Many cases of pernicious anemia develop the paresthesias before the blood picture shows evidence of anemia. Usually, however, there is a tendency to macrocytosis even before anemia develops. These cases respond with most difficulty to any form of specific therapy. Longcope recently reported encouraging results with large doses of liver or liver extract, using as much as 1½ pounds of liver a day. Raw pork stomach ground up and mixed with orange or tomato juice or other fruit juice, or desiccated, defatted hog stomach have also been of much value. At least from a half to 1 pound of raw stomach or from 20 to 40 Gm. of the desiccated product should be given daily.

IRRITATION OF PENIS FROM CONTRACEPTIVE SUPPOSITORY

To the Editor:—I recently saw a young man who, shortly following intercourse, experienced marked swelling and pain of the external genitalia, particularly the penis. He states that immediately prior to one act a commonly used brand of vaginal suppository was inserted into the vagina. He was similarly affected several years ago under the same circumstances. Examination revealed a markedly edematous penis and scrotum with concomitant bilateral palpebral edema. The latter, he states, appeared at the same time as the genital swelling. How do you account for the palpebral involvement? What was the offending agent in the suppository? Are such cases on record? Please omit name.

M.D., New York.

ANSWER.—Contraceptive vaginal suppositories and globules may contain acid mercury preparations, sulphonated bitumen, oxyquinolin sulphate (chinosol), quinine, boric acid or hypochlorites. For these drugs, individuals may show a marked idiosyncrasy. In susceptible individuals, local irritation and inflammation of the penial skin occurs, while extensive absorption may produce renal disturbances with subsequent development of edema in parts of the body where the subcutaneous tissue is of rather loose consistency.

PROPHYLAXIS OF OPHTHALMIA NEONATORUM

To the Editor:—We have had considerable trouble at the San Pedro General Hospital in the way of irritation in new-born infants' eyes from silver nitrate used as a prophylaxis against ophthalmia neonatorum. In order to eliminate this difficulty, which is objectionable principally because of its disconcerting effects on parents, we are endeavoring to use some other equally efficient antiseptic. For this reason we would appreciate your opinion on the following matters: 1. Is mild silver protein (argyrol) as effectual as silver nitrate? 2. If so, what percentage would you suggest for the strength of solution? How long can such a solution be kept without losing its antiseptic qualities, or becoming irritating? Would you suggest anything else?

A. W. WARNOCK, M.D., San Pedro, Calif.

ANSWER.—1. No. No colloidal silver or silver protein is as efficient as silver nitrate in the prevention of gonorrheal ophthalmia.

2. One per cent mercurochrome-220 soluble has been used successfully as a preventive, but no statistics have been compiled on this nor is this view shared by all ophthalmologists.

3. Better continue to use a fresh 1 per cent silver nitrate solution and be safe.

LIQUID PETROLATUM FOR OIL IMMERSION LENS

To the Editor.—It might interest microscopists to know that liquid petrolatum is not only "just as good" but is actually superior to cedar oil for oil immersion work for the following reasons: 1. The field of vision is just as clear. 2. Liquid petrolatum is more stable. 3. It is easily removed from the slide at any time by wiping. 4. With liquid petrolatum it is easier to clean slides for reuse. 5. The lens never becomes gummed and clouded. 6. The fingers do not become gummed and sticky on handling. 7. It is cheaper and more convenient.

JOHN B. WELLS, M.D., Scott, Ark.

ANSWER.—Liquid petrolatum is being used in many preparations instead of cedar oil for oil immersion lenses. It is satisfactory in many ways, as Dr. Wells has stated. It must be remembered, however, that there are different grades of liquid petrolatum with different refractive indexes, and to obtain the best results, liquid petrolatum must be especially selected for the purpose.

BABINSKI REFLEX

To the Editor:—What interpretation should one place on the Babinski reflex when, after the inner side of the plantar surface of the foot has been irritated, the toes remain in the neutral position? No sign of the flexion or extension appeared.

ABRAM LIPKIS, M.D., Los Angeles.

ANSWER.—In plantar stimulation the normal response, of course, is a downward movement of the big toe. Frequently, however, in quite normal individuals there is no movement whatever. This lack of movement is suggestive of some pathologic disturbance when the other big toe moves downward well on plantar stimulation. It is frequently said that, when one big toe moves down and the other one does not move at all, this is an unequivocal Babinski reflex. This is frequently of significance in early lesions of the pyramidal tract.

DIAGNOSIS AND TREATMENT OF ASTHMA

To the Editor:—I have a younger brother, aged 13, who has vasomotor rhinitis and has had three asthmatic attacks. Protein sensitization tests have shown sensitization only to dust. Do you think injections of dust extract will help this condition? Do you think removal to a different climate will help? If so, what localities are suitable for such conditions? Will residence in a suitable climate cure the condition permanently or will the condition return with removal back to New York after a time?

M. D., New York.

Answer.—Dust extracts help some patients sensitive to dust. It is impossible to say whether a change of climate will help. The majority of patients are not permanently relieved by change of climate and the condition usually returns when they return home. A careful study of the case by some one specializing in the diagnosis and treatment of allergic diseases might be helpful.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, Jan. 6-7, 1931. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

California: San Francisco and Los Angeles, Dec. 10, 1930. Reciprocity examinations. Sec., Dr. C. B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

Colorado: Denver, Jan. 6, 1931. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

Delaware: Wilmington, Dec. 16-18, 1930. Homeopathic. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington, Del.

Dist. Columbia: Basic Science, probably Dec. 28, 1930. Regular, Jan. 12, 1931. Washington, D. C. Sec., Dr. W. C. Fowler, District Bldg., Washington, D. C.

Iowa: Des Moines, Dec. 2-4, 1930. Dir., Mr. H. W. Grefe, Iowa Dept. of Health, Des Moines, Iowa.

Kansas: Topeka, Dec. 9, 1930. Sec., Dr. A. S. Ross, Sabetha, Kan.

Kentucky: Louisville, Dec. 2, 1930. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville, Ky.

Maryland: Regular, Baltimore, Dec. 9-12, 1930. Sec., Dr. H. M. Fitzhugh, 1211 Cathedral St., Baltimore, Md. Homeopathic, Baltimore, Dec. 9, 1930. Sec., Dr. J. S. Garrison, 517 Old Orchard Rd., Ten Hills, Baltimore, Md.

Minnesota: Minneapolis, Jan. 6-7, 1931. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., Minneapolis, Minn.

Mississippi: Jackson, Dec. 11, 1930. Reciprocity Applicants only. Sec., Dr. F. J. Underwood, Jackson, Miss.

North Dakota: Grand Forks, Jan. 6-9, 1931. Sec., Dr. G. N. Williamson, Grand Forks, N. D.

Ohio: Columbus, Dec. 1-4, 1930. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus, Ohio.

Oregon: Portland, Jan. 6-8, 1931. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland, Ore.

Pennsylvania: Philadelphia, Jan. 6-10, 1931. Supt., Mr. C. D. Koch, Harrisburgh, Pa.

Rhode Island: Providence, Dec. 30-31, 1930. Dir., Mr. L. A. Round, Room 319 State Office Bldg., Providence, R. I.

Utah: Salt Lake City, Dec. 15 and 16, 1930. Dir., Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City, Utah.

Virginia: Richmond, Dec. 9-12, 1930. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke, Va.

Washington: Seattle, Basic Science, Jan. 8-9, 1931. Dir., Mr. Charles Maybury, Olympia, Wash.

Wisconsin: Milwaukee, Dec. 13, 1930. Basic Science. Sec., Prof. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

Pennsylvania July Examination

Mr. C. D. Koch, superintendent of professional education in the Department of Public Instruction of Pennsylvania, reports the written and practical examination held at Philadelphia and Pittsburgh, July 8-12, 1930. Three hundred and seventy-nine candidates were examined, 370 of whom passed and 9 failed. The following colleges were represented:

PASSED

College	Year Grad.	Number Passed
Georgetown University School of Medicine	(1928, 1) (1929, 8)	9
George Washington University Medical School	(1929, 4)	4
Howard University School of Medicine	(1929, 3)	3
Loyola University School of Medicine	(1930, 2)	2
Northwestern University Medical School	(1929, 1)	1
Rush Medical College	(1929, 2)	2
State University of Iowa College of Medicine	(1929, 1)	1
College of Physicians and Surgeons, Baltimore	(1912, 1)	1
Johns Hopkins Univ. School of Medicine	(1927, 1) (1929, 1)	2
University of Maryland School of Medicine	(1929, 5)	5
Harvard University Medical School	(1929, 2)	2
Tufts College Medical School	(1909, 1) (1929, 1)	2
University of Michigan Medical School	(1929, 4)	4
University of Minnesota Medical School	(1929, 1)	1
St. Louis University School of Medicine	(1929, 4)	4
Columbia University College of Phys. and Surg.	(1929, 2)	2
Cornell University Medical College	(1923, 1) (1929, 1)	2
University and Bellevue Hospital and Med. College	(1929, 2)	2
University of Buffalo School of Medicine	(1927, 1) (1929, 1)	2
Eclectic Medical College, Cincinnati	(1929, 1)	1
Ohio State College of Medicine	(1929, 1)	1
University of Cincinnati College of Med.	(1928, 1) (1930, 1)	2
Western Reserve University School of Medicine	(1929, 5)	5
Hahnemann Medical College of Philadelphia	(1928, 1) (1929, 42)	43
Jefferson Medical College	(1927, 1) (1928, 25) (1929, 54)	80
Temple Univ. School of Med.	(1922, 1) (1928, 4) (1929, 32)	37
University of Pennsylvania School of Medicine	(1925, 1) (1927, 2) (1928, 25) (1929, 39)	67
University of Pittsburgh School of Med.	(1928, 1) (1929, 60)	61
Woman's Medical College of Pennsylvania	(1929, 8)	8
Med. College of the State of South Carolina	(1913, 1) (1928, 1)	2
University of Texas School of Medicine	(1927, 1)	1
Medical College of Va.	(1915, 1) (1927, 1) (1928, 1) (1929, 1)	4
University of Virginia College of Medicine	(1928, 2)	2
McGill University Faculty of Medicine	(1925, 1)	1
Queen's University Faculty of Medicine	(1921, 1)	1
University of Budapest Faculty of Medicine	(1925, 1)	1
University of Modena Faculty of Medicine	(1925, 1)	1
University of Naples Faculty of Medicine	(1927, 1)	1

FAILED

College	Year Grad.	Total Number
Howard University School of Medicine	(1928, 2)	2
University of Nebraska School of Medicine	(1928, 1)	1
Hahnemann Medical College of Philadelphia	(1929, 1)	1
University of Pittsburgh School of Medicine	(1929, 3)	3
Medical College of Virginia	(1929, 1)	1
Laval University Faculty of Medicine	(1929, 1)	1

Mr. Koch also reports 21 physicians licensed through reciprocity with other states and 8 by the endorsement of credentials. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University Medical School	(1926)	Maryland
Loyola University School of Medicine	(1929)	Illinois
Northwestern University Medical School	(1926)	Illinois
University of Illinois College of Medicine	(1930)	Illinois
Indiana University School of Med.	(1925) W. Va. (1925)	Indiana
University of Maryland School of Medicine	(1924)	Maryland
Tufts College Medical School	(1924) Massachusetts (1925) Indiana (1927)	Kansas
University of Michigan Medical School	(1926)	Minnesota
University of Nebraska College of Medicine	(1927)	Nebraska
Columbia University College of Physicians and Surg.	(1914)	New York
Cornell University College of Medicine	(1911)	New York
Syracuse University College of Medicine	(1913)	New York
Ohio State University College of Medicine	(1927)	Ohio
Hahnemann Medical College of Philadelphia	(1928) (1929)	New Jersey
Jefferson Medical College	(1916) New Jersey (1920)	Connecticut
Woman's Medical College of Pennsylvania	(1928)	Connecticut

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement of
George Washington University Medical School	(1891)	U. S. Navy
Johns Hopkins University School of Medicine	(1928)	N. B. M. Ex.
University of Maryland School of Medicine	(1917)	U. S. Army
University of Michigan Medical School	(1926)	N. B. M. Ex.
Washington University School of Medicine	(1926)	N. B. M. Ex.
University and Bellevue Hospital and Medical Coll.	(1927)	N. B. M. Ex.
Jefferson Medical College	(1929)	N. B. M. Ex.
University of Pennsylvania School of Medicine	(1929)	N. B. M. Ex.

Colorado July Examination

Dr. William W. Williams, secretary of the Board of Medical Examiners of Colorado, reports the written examination held at Denver, July 1, 1930. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Thirty-nine candidates were examined and passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
University of Colorado School of Medicine	(1930)	82.7, 85.1, 85.2, 85.6, 86.1, 86.5, 86.6, 87, 87.1, 87.3, 87.6, 87.7, 88.5, 88.7, 88.8, 89.2, 89.8, 90, 90.1, 90.2, 90.6, 90.7, 90.8, 91.1, 91.1, 91.8, 92.1, 92.2, 94, 94.5
Osteopaths		79.1, 80.1, 81.2, 82, 84.2, 86.2, 87.1, 87.7, 89.3

Dr. Williams also reports 10 physicians licensed by the endorsement of credentials and 1 was granted a duplicate license at the meeting held July 1, 1930. The following colleges were represented:

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement of
College of Medical Evangelists	(1924)	California
Univ. of Colorado Sch. of Med.	(1928) N. B. M. Ex., (1929)	California
University of Illinois College of Medicine	(1912)	Illinois
Tulane University of Louisiana School of Medicine	(1924)	Maryland
Johns Hopkins University School of Medicine	(1916)	Maryland
University of Michigan Medical School	(1919)	Michigan
Ensworth Medical College, St. Joseph	(1900)	Nebraska
Columbia University College of Phys. and Surgs.	(1922)	New York
Vanderbilt University School of Medicine	(1910)	Mississippi

Book Notices

A SURVEY OF THE LAW CONCERNING DEAD HUMAN BODIES. By George H. Weinmann, LL.B., Attorney and Counselor at Law. Bulletin of the National Research Council, Number 73. December, 1929. Issued under the Auspices of the Committee on Medicolegal Problems. Paper. Price, $2. Pp. 199. Washington, D. C.: National Research Council of the National Academy of Sciences, 1929.

This is a compilation and digest of laws relating to the dead human body. The law does not specifically define what a dead human body is. It uses the term synonymously with corpse, and by inference rather than by direct statement looks on the latter as the body of a human being whose vital functions have ceased. A number of court decisions have established that the more or less completely disintegrated remains of a human being are no longer a dead human body in the legal sense.

The legal status of parts removed from the living body is of interest especially to surgeons and to hospitals. Under the common law such parts belong to the person from whom they have been removed, who or whose legal representative alone has the right to specify the disposition to be made of such parts. New York, North Dakota, Oklahoma and South Dakota recognize this right by specific statutory enactment. In the last three states the statute, if strictly interpreted, might require burial and removal permits for parts surgically removed. Although a stillbirth statistically has not been a living human being and is not a death, the laws requiring the reporting of stillbirths as such make the laws relating to the dead human body applicable to stillbirths. Because of the wide variation that exists in the different states in the definition of stillbirth, Weinmann recommends the adoption by all states of the definition proposed by the International Health Board of the League of Nations. Property right does not exist in the dead human body and it cannot therefore be bartered, bargained for or sold. However, the living person, who, under the common law, may specify by will or otherwise the method of disposal of his body and the performance of a necropsy on it, may during his life contract to sell his dead body and may collect payment on the contract before his death, provided the terms of the contract do not outrage public decency or menace the public health. The right that exists in a dead body is the right of custody, the right to possession of the body in the condition that it was in at the time death supervened. In general, the right of custody follows the laws of inheritance of property. The right of custody carries with it the duty of sepulture. A number of odd provisions of the common law that place the responsibility for burial, and hence give the right of granting permission for necropsy, on the tenant or owner of a building, the master or owner of a vessel, or the superintendent of a hospital in which death has occurred and the body remains unclaimed have been set aside in most jurisdictions by the so-called anatomic acts, which specify the disposal to be made of unclaimed dead bodies.

Since the person entitled to the custody of a dead human body is entitled to it in the condition it was in at the moment of death, the making of a postmortem examination requires the consent of the person entitled to custody. If the circumstances of death are such as to require action by the coroner or medical examiner, such official does not need the consent of the next of kin. Most states have statutes that prescribe the rights and duties of the coroner or medical examiner in the matter of inquests and necropsies. In the case of consent necropsies, the consent need not be in any specified form nor in writing unless written permission is specifically required by statute; Connecticut is the only state having such a statutory provision. The performance of an unauthorized necropsy renders him who performs it liable to a civil suit for damages. Since the dead body is not property, property damages may not be awarded in such cases. If the jurisdiction in which the suit is brought recognizes the doctrine of mental pain and anguish, the sum to be awarded lies in the discretion of the court. If this doctrine is not recognized, usually only nominal damages may be awarded. It has been held in many court decisions that the removal of parts or organs from the body, even when consent for necropsy has been given, is illegal unless necessary to establish the cause of death. Although the matter has never come up for court decision, Weinmann states it as his opinion that under certain circumstances the presence of spectators at a permission necropsy might be construed as causing mental pain and anguish to surviving relatives and might therefore render the pathologist who permits spectators to be present liable in damages. Facts learned at necropsy are admissible as evidence and do not come under the rule of privileged communications.

The laws regulating embalming deal chiefly with the licensing of embalmers, with the composition of the embalming fluid to be used, and with the contagious disease in which embalming is necessary. The transportation of the dead body may involve compliance with the death certificate and burial permit regulations of the state from which the body is shipped and of the state into which it is shipped, with federal quarantine, customs and immigration regulations, and with interstate and intrastate commerce regulations. The usual method of disposal of the dead human body is by interment. Although under the common law burial need not be in a recognized cemetery, this matter is governed by the burial permit regulations. Some states require a special permit for cremation. Some others require the authorization of the coroner or medical examiner. Exhumation of a dead body may be ordered by the coroner or medical examiner if circumstances have come to light since burial that make examination of the body necessary. In civil actions, courts are loath to order exhumation unless some important private or public issue is involved. The regulations relating to exhumation have as their chief aim the safeguarding of the public health.

DIE CHIRURGIE: EINE ZUSAMMENFASSENDE DARSTELLUNG DER ALLGEMEINEN UND DER SPEZIELLEN CHIRURGIE. Herausgegeben von Prof. Dr. M. Kirschner und Prof. Dr. O. Nordmann. Lieferung 28. Band III. Chirurgie der Nerven. Von Prof. Dr. W. Lehmann. Paper. Price, 11 marks. Pp. 833-980, with 73 illustrations. Berlin: Urban & Schwarzenberg, 1930.

DIE CHIRURGIE: EINE ZUSAMMENFASSENDE DARSTELLUNG DER ALLGEMEINEN UND DER SPEZIELLEN CHIRURGIE. Herausgegeben von Prof. Dr. M. Kirschner und Prof. Dr. O. Nordmann. Lieferung 29, Band II. Teil 2. Die Operationen an den Knochen und Gelenken. Von Priv.-Doz. Dr. A. Winkelbauer. Paper. Price, 16 marks. Pp. 1829-2028, with 98 illustrations. Berlin: Urban & Schwarzenberg, 1930.

The twenty-eighth and twenty-ninth sections, the last of the system of Die Chirurgie, have arrived. The former, by Lehmann of Frankfort, takes up the subject of surgery of the nerves, and the second, by Winkelbaüer of Vienna, covers operations on the bones and joints. In their general appearances handling of the subject and make-up, these two sections resembl their predecessors. The section on surgery of the nerves covers the subject in a systematic manner, discussing anatomy and pathology and ending with a good bibliography. The first part of the section is devoted to general underlying principles; the second covers operations on specific nerves, starting with the cranial nerves, going downward through the spinal nerves, and ending with operations on the peroneus and the tibialis. Perhaps it is because the subject matter lends itself so easily to a systematic exposition or perhaps it is because of the way Professor Lehmann handles the subject that this section avoids one of the faults seen in so many of the previous sections; namely, that the material is not accessible. The section on surgery of the bones and joints is similarly divided into a general part dealing with the operative treatment of bones and joints as a whole and a special part dealing with the individual bones and joints. The book is confined to technic and covers only what has not been covered in the sections on bone and joint surgery that have already appeared.

These two sections complete a six volume system of surgery by Kirschner and Nordmann. The system is written in German and has appeared in twenty-nine different sections, which have come from the press from time to time over the period of more than a year. According to the advertisements, a durable encasement is furnished to enclose the various sections which make up any one volume. The various sections vary from 200 to 400 pages, are paper bound, and are rather poorly held together. The illustrations are good. Some of the color plates are excellent. Each volume is indexed for itself and a general index is to come with the system. The type is good but the reader who is accustomed to the average American work, in which subjects are separated from one another by the use of different kinds of type and by deep paragraphing, will be disappointed when trying to pick material out of the solemn-looking page. The whole field of surgery has been covered. The material has been

BOOK NOTICES

gathered together by men whose knowledge of the subject is beyond question. The individual authors have written their particular assignments in a careful, thorough and exhaustive manner.

However, the worth of this system must be weighed by other similar works that are available. As compared to the best recent systems of surgery written in English, Die Chirurgie will be a disappointment. Although the subject matter is excellent, one cannot say that the material is treated any better than in many other systems.

Military Preventive Medicine. By George C. Dunham, M.A., M.D., Dr.P.H., Major Medical Corps, U. S. Army. The Army Medical Bulletin, Number 23. Cloth. Limited distribution and not for sale. Pp. 1051, with 197 illustrations. Carlisle Barracks: Medical Field Service School, 1930.

Army Medical Bulletin 23, a book of more than a thousand pages, elucidates such problems in military preventive medicine as sewage treatment and disposal, the protection of the water and food supplies and the prevention of diseases transmitted by insects. This bulletin shows what can be done in camp to keep flies and mosquitoes from breeding, how pasteurization plants can be quickly set in operation, how water supplies can be made potable by chlorination, and the disposal of refuse from the kitchen and stables. The numerous illustrations include fly traps, incinerators, latrines and septic tanks. This basic information on healthful camp life has, in this volume, been placed under one cover for the first time. The author has not endeavored to cover the entire field of military preventive medicine. His object was to provide medical officers with information that will help them determine by study and inspections the effect of sanitary conditions on health, as well as to supervise the application of measures that have been enforced to protect the health of troops. Special attention, therefore, has been given to the control of communicable disease among troops, and to environmental conditions that affect the spread of disease. There are score cards on several pages which students can fill in, thus practicing the inspection of dairy farms, milk plants, and other parts of a camp. This book will be useful to all medical military personnel.

Medicinal Drugs of India. By Kaviraj Balwant Singh Mohan, Vaidya Wachaspati (Pb.) A.M.A.C. (Mad.), Research Scholar, Lahore. Cloth. Price, Rs. 2/-, Foreign, $3. Pp. 281. Lahore: Atma Ram & Sons, 1930.

This book should be useful to the practitioner of "European" medicine in India to enable him to identify the native drugs and to understand the uses made of them. From it are learned such facts as that Hingu is the Sanskrit name for asafetida, "Badam-I-Shirin" for sweet almond, and Dalchini for cinnamon. Occasionally one runs across acquaintances such as Chaulmugra, Dhatura and Kamala; but, in general, the student of materia medica finds himself lost in a to him unknown jungle of strange herbs. The author admits that it generally was a custom with the Sanskrit writers to make exaggerated statements about the uses of various compound preparations, but that "if the sound principles and methods . . . with the time honored recipes of reliable efficiency were not there, the Ayurvedic system of medicine would have been dead by this time in the struggle for existence." Nearly 80 per cent of the people living in the villages of India are on the verge of starvation. When these poor people fall ill they find scientific treatment so expensive that they cannot afford to pay even for their prescriptions. Naturally they are obliged to try some drugs at the hands of a village quack who is unscientific as well as uncertain about the diagnosis and treatment of any ailment. "Surely, if our allopathic friends devote their attention . . . toward some systematic study about the indigenous medicine . . . they can do excellent service to the suffering humanity with much less cost." What sorely troubles the author is that, though India is rich in many important medicinal drugs, most of them are imported into the country because of lack of government initiative and encouragement; and that, in some instances, drugs are exported from India to foreign countries only to be returned as finished products at much higher prices. Research work in the Ayurveda would "yield an unlimited field for bringing out much useful material which will not only be an asset to the country's economic uplift but will materially benefit the whole world."

Sadism and Masochism: The Psychology of Hatred and Cruelty. In two volumes. By Wilhelm Stekel, M.D. Authorized English version by Louise Brink, Ph.D. Cloth. Price, $10 per set. Pp. 441 and pp. 473. New York: Horace Liveright, 1929.

These are among the most recent volumes in a series now being issued in English by Horace Liveright. Stekel is generally recognized as a disciple of Freud who has gone far beyond Freud himself, as well as other followers of the great psychologist, in his methods and in the extent of his practice. He is recognized as perhaps more romantic than scientific. In these two volumes he is largely concerned with the relationships of hatred and cruelty to psychologic reactions. It has been known since these subjects were popularized by Havelock Ellis that there is a clear relationship between the sex element and both the infliction and the enjoyment of cruelty. Dr. Stekel makes this clear by the recital of numerous cases from his practice and from psychosexual literature. His manner of presentation is such as to make almost anything he writes most interesting.

Über die akute und chronische gelbe Leberatrophie mit besonderer Berucksichtigung ihres epidemischen Auftretens in Schweden im Jahre 1927. Von Prof. Dr. Hilding Bergstrand. Paper. Price, 14 marks. Pp. 114, with illustrations. Leipzig: Georg Thieme, 1930.

The format, print and illustrations of this book are attractive. The author regards acute yellow atrophy of the liver as a distinct disease caused by a specific agent, most likely infectious in nature. Syphilis, pregnancy and other conditions believed to cause acute yellow atrophy are held to be predisposing factors. Some 150 cases were studied and of these 97 occurred in Sweden in 1927, their incidence describing a curve like that of an epidemic disease. In the city of Gothenburg catarrhal icterus and acute atrophy described parallel curves. At the most only one of the 97 patients had syphilis and of the 72 women in the series none were pregnant or recently delivered. The book records the results of a careful study of acute yellow atrophy on the basis of the material indicated. The nature of the material, the relation of acute atrophy to catarrhal icterus, the cause, symptoms and forms of acute atrophy, its pathologic anatomy and its etiology are discussed. At the end are many case reports. The changes in the liver, the acute as well as the chronic, are described thoroughly and well illustrated. The monograph is an important addition to the literature of acute yellow atrophy of the liver. The suggestion, which is supported by the circumstances, that it concerns a specific, infectious disease merits serious further consideration.

Laboratory Manual in College Physiology. By Cleveland Pendleton Hickman, Ph.D., Professor of Zoölogy in De Pauw University. Cloth. Price, $1.10. Pp. 116. New York: The Macmillan Company, 1930.

This little manual is well suited to meet the needs of the courses in elementary physiology taught in colleges and normal schools, or wherever the facilities are limited. The directions for the laboratory work are brief and explicit, and each group of experiments is preceded by an introductory discussion of the functions of the system to be studied. The experiments are well chosen, both for the instructiveness and for the ease with which they may be performed.

Viaggi ed escursioni scientifiche di Lazzaro Spallanzani. Di Giacomo Pighini. Prefazione di Guglielmo Bilancioni. Paper. Price, 40 lire. Pp. 441, with illustrations. Bologna: Licinio Cappelli, 1929.

Many famous Italians have been remarkably versatile. It will be recalled that Leonardo was a painter, anatomist and engineer; Galileo, a mathematician, astronomer and musician; Michelangelo, a sculptor, painter and architect. Among these must be mentioned Spallanzani, who was an all-round naturalist. He was not a famous specialist in anatomy, yet he made minute anatomic studies that led to important physiologic discoveries; he contributed to a knowledge of plant physiology; though not an expert chemist, he had enough practical knowledge to enable him to shed new light on the subjects of digestion, respiration, mineralogy and volcanology. He was a physicist, chemist, geologist, botanist, anatomist, physiologist. He was a great traveler, collecting many and valuable specimens for his museums. On his voyages he made copious notes, many of which are in his published volumes. T[illegible]ok is made up of such notes selected and carefully edited, with explanatory comments by Pighini. They are of greater interest to the general scientist, the geologist, the zoologist, the botanist and the volcanologist than to the physician. They are largely concerned with his observations on rocks, mountains, lakes, volcanoes and marine life. Spallanzani's voyages took him to many mountains and lakes of Italy, including Sicily, to Switzerland, to Turkey and to various parts of the Adriatic and Mediterranean seas. The notes attract one both by their style and by the information they contain. They reveal the remarkably keen powers of observation and deduction of this famous eighteenth century investigator.

Diseases Transmitted from Animals to Man. By Thomas G. Hull, Chief Bacteriologist, Illinois Department of Public Health. With an introduction by Veranus A. Moore, Director, New York State Veterinary College, Cornell University. Cloth. Price, $5.50. Pp. 350, with 29 illustrations. Springfield: Charles C. Thomas, 1930.

This book is a systematic presentation of present-day knowledge of its subject. In the first section the diseases of animals and of birds are considered, beginning with their history and covering bacteriology, methods of dissemination and control. The second section reviews rodent diseases, the third human diseases spread by animals, the fourth animals as passive carriers of disease organisms in botulism, tetanus and gas gangrene, and the fifth a review of the rôle played by each animal in the spread of disease. There are also good author and subject indexes. The book is written in pleasing succinct style. It is well annotated. Each part has a brief summary. The knowledge it contains should be available to every physician, veterinarian and public health worker.

Die Prokto-Sigmoskopie und ihre Bedeutung für die Diagnostik und Therapie der Krankheiten des Rektum und des Sigmoideum. Von Geheimrat Professor Dr. Hermann Strauss. Second edition. Paper. Price, 17.50 marks. Pp. 99, with 78 illustrations. Leipzig: Georg Thieme, 1930.

This volume is a decided improvement over the first atlas issued by the author in 1910. It is profusely illustrated with natural color plates illustrating all of the more common diseases that can be diagnosed by the use of the anoscope, the proctoscope and the sigmoidoscope. Methods of examination and pathologic reports are described in the text in contrast to normal observations. It is unfortunate that such a beautiful work is not thought worthy of a better binding.

The Story of a Surgeon. By Sir John Bland-Sutton, Bt., F.R.C.S., Vice-President and Consulting Surgeon to Middlesex Hospital. With a preamble by Rudyard Kipling. Cloth. Price, $3.50. Pp. 204, with 26 illustrations. Boston: Houghton Mifflin Company, 1930.

At a time when numerous readers among both the public and the medical profession are writing and talking ecstatically about the romance and interest of the autobiography from "The Story of San Michele," it is refreshing to read a work with the charm and interest and, above all, with the essential honesty of this autobiography of Sir John Bland-Sutton. Influenced, no doubt, by the work of his father as a naturalist, his medical life is replete with references to all living things. His acquainanceship with actors, authors, ministers and statesmen was extensive. His humor is inspiring, his candor striking. His life reveals not only his own nature but the development of the most important period of medical science, including asepsis and bacteriology. His influence on anatomy and gynecology was an important one. His book is written with a sedate yet journalistic style, and he reflects in it all the things that have interested him. An unusual feature is the last chapter, in which he carefully records his own contributions to literature and his impression of their merits. Every surgeon and gynecologist will find in this book much that is of value. Anatomists will find it particularly in their field, and the general reader will learn much that will amaze and interest him.

Handbuch der Geisteskrankheiten. Herausgegeben von Oswald Bumke. Band IV. Teil 4: Allgemeiner Teil. Bearbeitet von K. Birnbaum, P. Nitsche und W. Vorkastner. Paper. Price, 44 marks. Pp. 421. Berlin: Julius Springer, 1929.

This volume of the system of psychiatry edited by Bumke is concerned with general therapy and prophylaxis of mental diseases, forensic psychiatry and the borders of psychiatry with general cultural and social sciences. The book fulfils the promise of the editor in making this handbuch a great work.

Medicolegal

Vesicovaginal Fistula Following Hysterectomy

(Brear v. Sweet (Wash.), 284 P. 803)

A physician, Sweet, removed the uterus of the appellant, Brear, because of what appeared to be a cancerous growth in it. Immediately after the operation, a retention catheter was employed. After this was removed on the third day, the patient voided urine naturally until the evening of the eighth day. Then urine was found to be leaking from the vagina. The patient and her husband brought suit, charging that in performing the operation the physician carelessly and negligently cut the bladder, making a large hole in it, through which the leakage occurred. All of the witnesses on both sides of the case agreed that a hole might have been made accidentally by the physician in operating, or by unavoidable infection incident to the operation, or by infection independent of the operation, or by sloughing due to the natural trauma incident to the operation, or through other unavoidable causes. The case was tried, however, in harmony with the complaint, on the theory that the physician, in performing the operation, carelessly cut the wall of the bladder. The jury returned a verdict in favor of the patient. The physician thereupon moved for judgment in his favor, nothwithstanding the verdict. His motion was granted, and the patient appealed to the Supreme Court of Washington.

It may well be stated at the outset, said the Supreme Court, that the doctrine of res ipsa loquitur (the thing speaks for itself) does not apply to an action such as this, and the mere fact that a bad result has followed an operation is not of itself evidence of negligence. The only testimony in the record, said the court, indicating that the physician might have cut the wall of the bladder was what purported to be an admission by the physician, to his patient, concerning which she and her husband testified. The consensus of medical testimony, however, was that the history of the patient during the seven or eight days immediately following operation, during which period there was no escape of urine from the vagina, showed conclusively that the bladder was not punctured during the operation. All of the medical witnesses on both sides agreed that in an operation such as that to which the patient was subjected in this case it was necessary to peel as close to the bladder as it was possible to do without injuring the bladder wall. Two physicians who assisted in the operation, the nurse, and the physician who operated testified that the wall of the bladder was not cut at that time. The consensus of all the medical testimony was to the effect that a vesicovaginal fistula might follow a hysterectomy for cancer, and that the fact that it does follow is no evidence of lack of skill in performing the operation. The Supreme Court could find no evidence in the case that would justify the jury in finding that the bladder was cut during the operation, and that was the theory on which the complaint was based and on which the case was submitted. All charges of carelessness and negligence in treatment after the operation had been withdrawn before the case was submitted. As the Supreme Court could find no evidence to substantiate the charge that the bladder was cut during the operation, it affirmed the judgment of the trial court in favor of the physician, notwithstanding the verdict of the jury in favor of the patient.

Liability for Physical and Mental Suffering

(Georgia Power & Light Co. v. Haskins (Ga.), 151 S. E. 668)

The plaintiff, Haskins, went to the hospital to be confined. On being informed that a cesarean operation was necessary, she requested that her appendix be removed in the course of the operation, as she was suffering from appendicitis and had been suffering from it for some time. The hospital was lighted by electricity supplied by the defendant, the Georgia Power and Light Company. After the child had been removed and before the removal of the appendix, the company, without notice or warning, suddenly extinguished the lights, and service was not reestablished until forty-five minutes later. The lamps and flash-lights that were used in the interval of darkness were not sufficient to enable the operating surgeons to remove the patient's appendix, and since they did not know how long the electric lights would remain extinguished, they closed the wound without removing it. The inadequacy of the substituted lighting retarded the tying of the bleeding vessels and thus caused unnecessary loss of blood and consequent weakness. The plaintiff sued the electric light company, alleging that she had suffered much pain as a result of its negligence and carelessness; that she had suffered continuously from appendicitis since the operation; that, as a result of the loss of blood and the weakness produced by the operation, she had not sufficient physical strength to undergo another operation; and that she was informed by physicians that she would continue to suffer from appendicitis for the remainder of her life. Judgment was awarded in her favor, and the defendant appealed to the Court of Appeals of Georgia, Division No. 2.

A line of Georgia cases, said the Court of Appeals, has established the rule that where the breach of a duty consists only of a negligent failure to do some act, and that breach results in physical and/or mental pain and suffering, there can be no recovery of damages unless there is an accompanying physical injury: *Chapman* v. *Western Union Telegraph Co.*, 88 Ga. 763, 15 S. E. 901, 17 L. R. A. 430, 30 Am. St. Rep. 183; *Seifert* v. *Western Union Telegraph Co.*, 129 Ga. 181, 58 S. E. 699, 700, 11 L. R. A. (N. S.) 1149, 121 Am. St. Rep. 210; *Southern Bell Telephone and Telegraph Co.* v. *Reynolds*, 139 Ga. 385, 77 S. E. 388, 389. The present case is controlled by the decision in the Reynolds case, cited above. There the plaintiff claimed that she had been bruised, contused and lacerated, that she had hemorrhages and endured great physical pain and mental anguish and that her health had been greatly and permanently impaired. All this, she claimed, resulted from the failure of the telephone company to respond to the calls of her husband when he attempted to summon a physician for her when she was about to give birth to a child, with the result that the child was born without the presence of medical aid. There the court held that no cause for damages was set out in the petition, as, in the opinion of the court, there was no showing of a physical injury. In the present case the only ill consequence tending to indicate physical injury alleged to have been suffered by the plaintiff was the unnecessary loss of blood as she remained bleeding, wounded and helpless for several minutes. In the court's opinion, apparently, this was not a physical injury and the judgment of the lower court was accordingly reversed.

An Osteopath as a Legally Qualified Physician

(State ex rel. Walker v. Dean (Wash.), 284 P. 756)

In the State of Washington, under a law enacted in 1907, no one other than "a legally qualified physician" can be lawfully appointed as the city health officer of any incorporated city or town, except in cities of the first class. A physician so appointed holds office until January 31 of the year following that in which he is appointed or until his successor is appointed and qualified. When this law was passed, the laws of the state made no provision for the licensing of osteopaths. Not until two years later was a law passed providing for the issue of licenses to practice osteopathy (Laws of 1909, chapter 192, p. 677). Ten years later a law was passed (Laws of 1919, chapter 4, page 4) providing for the appointment of a board of osteopathic examiners, to conduct examinations of osteopaths and to issue licenses to practice osteopathy and to practice surgery. The statute required that persons licensed under it identify themselves as osteopaths by using the word "osteopathic" before the word "physician" or the word "surgeon," wherever either word appeared on their cards, signs, letter-heads, envelops and bill-heads.

Notwithstanding the requirements of the law that the mayor appoint "a legally qualified physician" as city health officer, the mayor of Ellensburg, Jan. 1, 1929, appointed a licensed osteopath to that office. The incumbent, a licensed physician who held the office, refused to vacate it in favor of the osteopath. The osteopath thereupon brought suit to establish his right to the office, basing his claim on the contention that he was "a legally qualified physician" within the meaning of the law, at the time of his appointment. The trial court decided the issue against the osteopath, and he thereupon appealed to the Supreme Court of Washington.

The Supreme Court, in the absence of any definition of the word "physician" in the laws of the state, quoted with approval a definition in Webster's New International Dictionary, "a person skilled in physic, or the art of healing." It is clear, said the Supreme Court, that a regularly licensed osteopath is a physician, within the broad or general definition of the word. The respondent, the physician who was contesting the right of the osteopath to the office, pointed out, however, that in 1907, when the law was enacted that limits the employment of health officers to "legally qualified" physicians, there was no law under which an osteopath could legally qualify to practice in the state. The court admitted that osteopaths were not within the contemplation of the legislature when, in 1907, it enacted the law. The osteopathic appointee contended, however, that the act of 1907 must be construed, not in relation to conditions as they existed when the law was enacted, but in the light of conditions as they existed at the time of his appointment. The court yielded to that contention and refused to follow the rule requiring the interpretation of statutes in the light of conditions existing at the time of their enactment, saying:

> The statute providing for the appointment of city health officers and stating the qualifications for such officials uses general terms. The act does not attempt to define the words which it uses in prescribing the qualifications which an appointee must possess, and, for the definition of the term used, reference must be had to general laws. This is not an instance in which a statute names several classes of eligibles, and because thereof classes not specifically named are deemed excluded. Such a rule of statutory construction is not applicable to the case at bar. . . .
>
> We are convinced that in construing section 6092, supra, in so far as the same prescribes qualifications for city health officers, reference must be had to the laws in force at the time an appointment thereunder be made, and that the inquiry is not governed by those laws which were in force at the time the act was passed.

Admitting that the osteopath was not under the law a physician in the broadest sense of that term, the court held that he was a "qualified" physician and that he was "a legally qualified osteopathic physician." In the judgment of the court, he was "a legally qualified physician" within the meaning of the statute and therefore qualified for appointment as a health officer.

Insanity: Arrests Without Warrant.—An insane person may be arrested and detained without legal process only when it is reasonably necessary, and a state of mild insanity does not make arrest and detention reasonably necessary. If, however, it appears that a person is dangerously insane, so that he is an immediate menace to himself or others, if allowed to be at large, it is then permissible for any person—whether an officer or not—to arrest the insane person without process and to detain him until proper process can issue. Where an officer arrests a person on suspicion of insanity, without first filing a complaint and obtaining an order of court for the arrest, he can, if he is sued for false imprisonment, justify his action only by showing by a preponderance of evidence that he had reasonable ground to believe, and did believe at the time, not only that the defendant was insane, but that he was in such a condition that it would not be safe to delay his arrest until proper process could be obtained.—*Christiansen v. Weston (Ariz.), 284 P. 149.*

Evidence: Cause and Effect.—Neither expert witnesses nor the jury may be turned loose to conjecture what may by some possibility result from given conditions. The verdict must be confined to what is reasonably probable. The verdict must be based on evidence that shows with reasonable probability that the injury will produce the effect attributed to it.—*Galveston Ry. Co. v. Powers (Texas), 101 Texas 161, 164, 105 S. W. 491, 493.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.

American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.

Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, New York, Secretary.

Southern Surgical Association, Lexington, Ky., December 9-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Kansas City, Mo., December 5-6. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Arkansas Medical Society Journal, Little Rock

27: 93-109 (Oct.) 1930

Subdiaphragmatic Abscess. H. W. Hundling, Little Rock.—p. 93.
Roentgen Diagnosis of Urologic Conditions. H. K. Wade and H. C. Chenault, Hot Springs National Park.—p. 97.
Infant Feeding. J. W. Fleming, Jr., Smackover.—p. 99.

California & Western Medicine, San Francisco

33: 697-768 (Oct.) 1930

Dermatologic Expressions of Internal Medical Diseases. F. D. Weidman, Philadelphia.—p. 697.
Anatomy Acts of California. A. W. Meyer, Stanford.—p. 703.
*Fracture of Neck of Femur. J. C. Wilson, Los Angeles.—p. 707.
Sodium Isoamylethyl Barbiturate. L. A. Rethwilm, San Francisco.—p. 712.
*Chemical Adjuncts to General Anesthesia. C. D. Leake, San Francisco.—p. 714.
Influence of Sodium Amytal on Urinary Excretion. L. A. Emge and P. E. Hoffmann, San Francisco.—p. 718.
*Tribrom-Ethanol as Preoperative Narcotic. D. A. Wood, San Francisco.—p. 719.
Hay-Fever Plants of Utah. J. M. Anderson, Salt Lake City.—p. 723.
Postencephalitic Paroxysmal Oculogyric Crises. G. Cheney, San Francisco and S. Martins, Los Angeles.—p. 724.
Diseases of Tongue. H. C. Lindsay, Pasadena.—p. 729.
Missed Intra-Ocular Foreign Bodies. B. J. Powell, Stockton.—p. 733.
*Syphilitic Kidney. I. Bancroft, Los Angeles.—p. 735.
Ureteral Pain After Nephrectomy: Treatment by Ureterectomy. L. Michelson, San Francisco.—p. 738.
Girolamo Fracastoro (1478-1553) and Syphilis. W. K. Stratman-Thomas, New York.—p. 739.
Radicular Syndrome Following Infection with Tetanus: Case. M. L. Neff, Los Angeles.—p. 742.
Aberrant Salivary Gland in Tonsil Fossa: Case. R. S. Tillotson, Woodland.—p. 744.
Horseshoe Kidney: Case. A. J. Scholl, Los Angeles.—p. 745.
Varicose Vein Injecting Needle. R. L. Schulz, Los Angeles.—p. 746.

Fracture of Neck of Femur.—Eighty-six consecutive fractures of the neck of the femur are analyzed by Wilson. Thirty-three of these patients are dead, twenty-eight having died in the hospital and five after having been discharged from the hospital. Fourteen patients died from cardiovascular disease and nephritis; eight died from bronchopneumonia. Fibrinous pericarditis, lung abscess, cirrhosis of the liver and pyelonephritis each accounted for one death. Three patients died suddenly after reduction of fractures. These deaths were attributed to coronary occlusion or pulmonary embolus. One patient died as a result of a ruptured bladder due to the injury. The cause of death was not recorded in three cases. Sixty-two patients were treated by the Whitman method, seven by extension, three by the Championier method, and fifteen received no treatment. Of the sixty-two patients treated by the Whitman method, eight died during the treatment. The one patient between the ages of 21 and 30 recovered with bony union; in two patients between 31 and 40 there was healing by bony union; and in the two patients between 41 and 50, there was healing by bony union and in one there was nonunion. The percentage of nonunion increases with advancing years. Not one of the seven surviving patients between 71 and 80 showed any signs of repair. In the three surviving patients treated by extension, healing by bony union occurred in one; this was an accidental fracture that occurred during the manipulation of an arthritic hip. The patients classified under the heading of no treatment refused to submit to the measures recommended or were too feeble for surgical intervention. In only two of the fifteen cases was the period of hospitalization survived, with termination in nonunion. Two patients were treated by the method of Championier, mobilization and massage, and both were failures.

Chemical Adjuncts to General Anesthesia.—Examination of some of the possible chemical adjuncts to anesthesia by Leake indicates the need of an extended critical pharmacologic and clinical evaluation of the various agents proposed for preanesthetic hypnosis or metabolism regulation, and for postanesthetic complications. Such an evaluation should be made in the light of present physiologic conceptions and the objects of anesthesia. He avers that only such chemical adjuncts to anesthesia, and only such anesthetic agents, should be used as contribute to, or disturb the least, the best physiologic condition of the patient.

Tribrom-Ethanol as Preoperative Narcotic.—Wood reports her experience with the use of tribrom-ethanol in twenty-five cases. Most of the patients had had previously bad surgical experiences and dreaded this particular operation greatly. All fear of the operating room was eliminated. Even though some of the patients did not actually fall into a deep sleep, they remember nothing after the injection of the drug. There was a deeper relaxation of the patient than with other usual preoperative drugs. In the patients when ether was used with tribrom-ethanol, only a small amount was needed to maintain the proper level of anesthesia. When nitrous oxide-oxygen was used, a high percentage of oxygen could be maintained and the patients kept pink, while they were sufficiently relaxed for gallbladder, gastric and pelvic surgery, and only two patients required the addition of ether to the nitrous oxide-oxygen sequence. Because tribrom-ethanol does not affect the heart, and because a high percentage of oxygen can be used in nitrous oxide-oxygen mixture, and the patients are never cyanosed, it can be of great value in anesthetizing thyroid patients and patients with myocardial damage. Great care must be used in preparation of the dosage of the drug. With the dosages used, no untoward effects were noted on the blood pressure or respiration. The patients were unanimous in agreeing that it was the best surgical experience they had ever had.

Syphilitic Kidney.—In the urinary examination of 350 patients with syphilis, no definite instances of syphilitic nephritis in which improvement occurred under treatment were discovered by Bancroft. Neoarsphenamine treatment was followed by albuminuria in 3 per cent of 350 adult patients. Neoarsphenamine treatment was followed by albuminuria in 12 per cent of twenty-eight congenital syphilitic patients. Albuminuria occurred in 6 per cent of thirty-three syphilitic patients in whom dermatitis occurred during arsenical treatment.

Canadian Medical Association Journal, Montreal

23: 477-620 (Oct.) 1930

*Experiences with High Carbohydrate-Low Calory Diet for Treatment of Diabetes Mellitus. I. M. Rabinowitch, Montreal.—p. 489.
Bacillus Coli Infections. K. D. Wilkinson, Birmingham, England.—p. 499.
*Anesthesia for Operations on Gravid Uterus. H. W. Featherstone, Birmingham, England.—p. 505.
Diagnosis and Treatment of Inflammation of Maxillary Antrum. P. G. Goldsmith, Toronto.—p. 512.
Early Diagnosis of Infective Lateral Sinus Thrombosis. F. Muecke, London.—p. 518.
Diagnosis of Cancer of Larynx. E. D. D. Davis, London.—p. 521.
*Value of Tests of Liver Function. G. M. Piersol, Philadelphia.—p. 524.
Significance of Limping in Children. G. A. Ramsay, London, Ont.—p. 531.
Heart Disease in Pregnancy. L. M. Murray, Toronto.—p. 535.
*Simple Method of Artificial Feeding in Infancy. H. P. Wright and A. K. Geddes, Montreal.—p. 537.
Care of Handicapped. E. Hochhauser, New York.—p. 540.
Place of Pasteurization in Scheme of Milk Distribution. A. S. M. MacGregor, Glasgow.—p. 544.
Laboratory in Scheme of Preventive Medicine. W. G. Willoughby, Eastbourne, England.—p. 548.
*Administration of Iron. V. E. Henderson and T. A. Sweet, Toronto.—p. 551.
Giant Ureteral Calculus. F. S. Patch, Montreal.—p. 553.
Diphtheria of Conjunctiva. S. H. McKee and E. V. Murphy, Montreal.—p. 555.
Use of Sistomensin. P. J. Kearns, Montreal.—p 557.
Takata-Ara Test for Cerebrospinal Fluid. D. E. Cameron and R. McCulloch, Brandon, Manit.—p. 557.

High Carbohydrate-Low Calory Diet in Diabetes Mellitus.—Rabinowitch describes his experiences with a diet of high carbohydrate-low fat content in the treatment of diabetes mellitus. He says that, provided the fat content is kept low and the caloric value is within the minimum requirements, it is possible, in the majority of cases, to make the diet of the diabetic patient quite attractive even without the use of insulin. Where insulin is necessary, the dosage and frequency of administration is less than with diets ordinarily in use. A practical advantage of this form of treatment is that special articles of food, such as bran muffins and gelatins, are not necessary. Two characteristic metabolic features associated with these diets are (*a*) low plasma cholesterol and (*b*) nitrogen retention in the early stages. The diets contain between 50 and 55 Gm. of fat only and if the patient adheres to the following simple rules this amount cannot be exceeded: (*a*) Only one egg is allowed at breakfast. (*b*) Bacon, fatty meats and fish, and cream are forbidden. (*c*) The amount of butter is confined to about 10 Gm. at each meal. (*d*) Half a glass (about 4 ounces) of milk is allowed at each meal. (*e*) The total amount of meat or fish allowed for lunch or dinner is not more than 45 Gm. (1½ ounces) and it must be very lean. Fruits and vegetables, generally classed as 5, 10 and 15 per cent, are now included in one list for two reasons: (*a*) the relatively small amount of carbohydrate in the fruits and vegetables compared to the total amount allowed in the diet, and (*b*) the results of recent analyses of these food materials. The number containing 15 per cent or more carbohydrate is so small that, if the rule of varying the articles daily is followed, accidental ingestion of excess carbohydrates is avoided. The remaining part of the diet is bread and the amount the individual is allowed depends on his caloric requirements. He may receive nine, ten, eleven, twelve or more slices of bread each day. Each slice of bread added to this diet increases it by approximately 18 Gm. of carbohydrate, 3 Gm. of protein, 0.5 of fat and 70 calories. Bulk, if lacking, may be met by the use of fruits and vegetables of practically no food value. An interesting experience, unknown in the past with diabetic patients, is that, if the energy requirement is much greater than 1,800 calories, the diet may reach the point at which the patients complain of too much bread. In this case, the different kinds of 20 per cent fruits and vegetables, such as bananas, potatoes and the breakfast cereals, may be substituted for the bread.

Anesthesia for Operations on Gravid Uterus.—Featherstone is convinced that, by a wise choice of method, the anesthetist may be able to offer valuable help to the obstetrician and to the gynecologist. In the more severe procedures, gas-oxygen is the best agent for general anesthesia. Spinal analgesia has an important place in the technic of cesarean section.

Value of Tests of Liver Function.—Experience with liver function tests, as applied to a considerable group of patients suffering from various disorders, has convinced Piersol that the three most practical and clinically useful tests are (1) the retention of the dye bromsulphalein; (2) the estimation of the serum bilirubin, particularly the determination of the icterus index, and (3) the occurrence of urobilinogen in the urine. The retention of bromsulphalein is not an early indication of liver dysfunction. The degree of retention is a helpful indication of the extent of liver damage. When dye retention occurs, other liver functional tests are also positive. The estimation of the serum bilirubin is a more useful test of liver function, since it frequently indicates the presence of a latent icterus before liver disorders can be recognized by clinical signs, and the persistence of bilirubin in the blood after all other evidences of liver disease have disappeared. An increase in the urobilinogen is the most delicate test of impaired function. Urobilinogen is increased even when damage to the liver parenchyma is exceedingly slight. It is persistently increased so long as any residual hepatitis remains, and it is the one test which has been positive in a certain number of cases in which liver disease was suspected but could not be proved clinically.

Simple Method of Artificial Feeding in Infancy.—Wright and Geddes assert that it is perfectly safe to feed normal babies during the first year by appetite on lactic acid whole milk 20 ounces (600 cc.) with the addition of 2 ounces (60 cc.) of 50 per cent corn syrup, at four hour intervals, five feedings in the twenty-four hours, and for exactly twenty minutes at each feeding, boiled water being offered between feedings and the accessory food factors supplied in adequate amounts. Furthermore, they are inclined to believe that some such simplified feeding is safer to place in the hands of the busy general practitioner than one that requires to be modified at regular intervals.

Administration of Iron.—Proprietary preparations are often more palatable and are consequently preferred by patients, yet a physician recommending these proprietaries has no assurance that they contain adequate amounts of iron, or even the amounts that they are supposed to contain. Consequently, a study of combinations of the pharmacopeial preparations of iron and of flavors has been undertaken by Henderson and Sweet with the object of presenting certain simple and palatable recipes. They recommend the following simple iron mixture: iron and ammonium citrate, 5 grains (0.3 Gm.); compound tincture of lavender, 5 minims (0.3 cc.); syrup, 15 minims (0.9 cc.); sufficient water to make 1 ounce (30 cc.). For the tincture of lavender an equal quantity of liquid extract of liquorice may be substituted if the patient likes liquorice, or some 15 minims (0.9 cc.) of compound tincture of cardamom. If the physician has a diabetic patient or a child to whom he does not wish to give sugar, the prescription may be written thus: iron and ammonium citrate, 5 grains (0.3 Gm.); compound tincture of lavender, 5 minims (0.3 cc.); gluside, 1/10 grain (6 mg.); sufficient water to make 1 ounce (30 cc.). Either liquorice or cardamom may be substituted for the lavender, or 15 minims (0.9 cc.) of glycerin may replace the gluside, though the mixture is then not quite so palatable. To either of these prescriptions arsenic, in the form of arsenical solution, may be added: iron and ammonium citrate, 5 grains (0.3 Gm.); arsenical solution, 2 minims (0.12 cc.); compound tincture of cardamom, 5 minims (0.3 cc.); syrup, 15 minims (0.9 cc.); sufficient water to make 1 ounce (30 cc.). If the physician desires to use a laxative with the iron, the most agreeable form in which it may be added is as sodium sulphate, which has not the unpleasant bitterness of magnesium sulphate. In this case, liquorice with syrup is much the best flavor to use: iron and ammonium citrate, 5 grains (0.3 Gm.); sodium sulphate, 20 grains (1.3 Gm.); fluidextract of glycyrrhiza, 5 minims (0.3 cc.); syrup, 15 minims (0.9 cc.); sufficient water to make 1 ounce (30 cc.). If the dose of sodium sulphate must be increased to 30 grains (2 Gm.), the total quantity must be increased to 2 drachms (7.5 cc.) and then the liquorice may be increased to 10 minims (0.6 cc.). Bitters are often given with iron. Only three bitters need to be considered, quassia, calumba, and strychnine or nux vomica. Of these strychnine or the tincture of nux vomica is the most pleasant, and calumba the least agreeable. Five minims (0.3 cc.) of the tincture of any of these bitters may be added to the foregoing prescription. With nux vomica the mixture will not be at all disagreeable to most persons. Strychnine has the further advantage that it tends to increase the reflex excitability and muscle tonus that are often recognized by patients as a sense of fitness. In the following prescription, its bitterness is almost completely disguised: iron and ammonium citrate, 5 grains (0.3 Gm.); solution of strychnine hydrochloride, 5 minims (0.3 cc.); fluidextract of glycyrrhiza, 5 minims (0.3 cc.); syrup, 15 minims (0.9 cc.); sufficient water to make 1 ounce (30 cc.). Again, bromides in 5 or 10 grain (0.3 or 0.65 Gm.) doses may be added to the foregoing preparations without changing the flavor, if sodium bromide is used. The most palatable iron preparation they know is based on an old fashioned prescription containing solution of ferric chloride, aromatic spirit of ammonia and syrup, but this is greatly improved if written thus: solution of ferric chloride, 45 minims (2.8 cc.); solution of potassium hydroxide, 3 drachms (11 cc.); ammonium carbonate, 2½ grains (0.15 Gm.); tincture of lemon, 7 minims (0.4 cc.); spirit of nutmeg, 7 minims (0.4 cc.); syrup, 3 drachms (11 cc.); sufficient water to make 1 ounce (30 cc.). A dose of 1 drachm (4 cc.) contains approximately 5½ minims (0.3 cc.) of solution of ferric chloride. To this preparation, arsenical solution or bromides, or sodium sulphate, may be added, but not strychnine in any form. The order in which the ingredients are mixed is important. The ferric chloride and syrup should be mixed together, and then to this is added with stirring the caustic potash, dissolved in about half an ounce of water. The mixture is well stirred and the ammonium carbonate added with stirring. The mixture gradually darkens and any precipitate disappears. The other ingredients are then added. The dosage of iron in these prescriptions has been so chosen that the physician can readily double the amount by doubling the dose. In many cases, a change in relative amount of the flavoring ingredients will make an appreciable change in the flavor of the mixture.

Indiana State Medical Assn. Journal, Fort Wayne

23: 473-516 (Oct. 15) 1930

Improvement in Medical Education and Practice. A. C. McDonald, Warsaw.—p. 473.
Problem of Malnourished School Child. R. Hippensteel, Indianapolis.—p. 475.
Diphtheria Toxoid as Immunizing Agent. O. B. Nesbit, Gary.—p. 479.
Hypothyroidism. C. R. Sowder, Indianapolis.—p. 482.
Diabetic Coma and Death: Unusual Case. A. F. Knoefel and M. C. Topping, Terre Haute.—p. 483.
Treatment of General Paralysis. O. R. Lynch and D. E. Singleton, Logansport.—p. 484.

Journal of Industrial Hygiene, Baltimore

12: 291-318 (Oct.) 1930

Electric Shock: Interpretation of Field Notes. W. MacLachlan, Toronto.—p. 291.
Effect of Chemically Pure Carbon Monoxide, Illuminating Gas and Automobile Exhaust Gas on Fragility of Red Blood Cells. M. R. Mayers, H. Rivkin and F. Krasnow, New York.—p. 300.
Contamination of Food Cooked or Stored in Contact with Nickel-Chromium-Iron Alloys. A. C. Titus, H. B. Elkins, H. G. Finn, L. T. Fairhall and C. K. Drinker, Boston.—p. 306.

Journal of Laboratory & Clinical Medicine, St. Louis

16: 1-106 (Oct.) 1930

*Effect of Thyroparathyroidectomy on Experimental Gastric Defects. A. Winkelstein and J. M. Ziegler, New York.—p. 1.
*Creatinuria in Tuberculosis. J. T. Thompson, Denver.—p. 5.
*Chronic Strophanthin Poisoning. A. S. Hyman and H. J. Lowen, New York.—p. 12.
*Hydatidiform Mole as Cause of Positive Reaction in Aschheim-Zondek Pregnancy Test. J. I. Fanz and E. S. Gault, Philadelphia.—p. 27.
Preparation of Brominated Oils and Brominated Esters. H. L. Wikoff, Columbus, Ohio.—p. 36.
*Effect of Barium Sulphate on Incidence of Human Intestinal Protozoa. J. Andrews and M. Paulson, Baltimore.—p. 39.
*Pharmacology of Brominated Oils. C. S. Smith and H. L. Wikoff, Columbus, Ohio.—p. 43.
Direct Isolation of Bacterium Tularense from Axillary Abscesses. F. W. Shaw and T. Hunnicutt, Jr., Richmond, Va.—p. 46.
Determination of Copper in Biologic Material. J. M. Inouye and F. B. Flinn, New York.—p. 49.
Testing Efficacy of Bactericidal and Bacteriostatic Reagents for Use in Specific Chemotherapeusis. B. S. Levine, Hines, Ill.—p. 52.
Acid-Fast Quality of Blastocystis Hominis. R. A. Keilty, Washington, D. C.—p. 59.
Simultaneous Determination of Inorganic Phosphate, Sugar and Lactic Acid in Blood. S. Morgulis and S. Pinto, Omaha.—p. 60.
Electric Device for Grinding Tissue Under Aseptic Conditions. H. O. Maryan, Chicago.—p. 64.
New Hemoglobinometer. R. L. Haden, Cleveland.—p. 68.
Preservation of Gross Specimens in Natural Colors. R. H. Goodale, Worcester, Mass.—p. 72.
Modified Meltzer Apparatus for Anesthesia in Animals. H. Livingstone and L. S. Hrdina, Chicago.—p. 74.
Method of Centering Cardioid Darkfield Condenser. L. B. Lange, Baltimore.—p. 80
Normal Blood Count of Rabbit. J. W. Jackson and W. D. Stovall, Madison, Wis.—p. 82.
New Apparatus for Administering Volatile Anesthetics Intratracheally Without Tracheotomy. L. J. Sawyer, Berkeley, Calif.—p. 87.
New High Efficiency Glass Condenser. P. R. Crandall, Battle Creek, Mich.—p. 89.

Thyroparathyroidectomy on Gastric Disease.—Patients with chronic gastric or duodenal ulcer present a hyperirritability somewhat suggestive of latent tetany. To investigate a possible relationship, a thyroparathyroidectomy was performed by Winkelstein and Ziegler in sixty dogs and four cats. Twenty dogs and three cats died in tetany without the administration of parathyroid extract. Twenty-four dogs that had received parathyroid extract for two weeks only died in tetany. Nine dogs, after two weeks of parathyroid extract administration, lived normally without it, and in these an ulcer excised in the stomach at the incisura angularis was found healed in from ten to ninety-two days. The authors conclude that a circular gastric defect, 5 cm. in diameter, extending down to the serosa, in the lesser curvature at the incisura angularis heals completely in approximately one to two months in an animal in whom a thyroparathyroidectomy has previously been performed. Apparently, neither a thyroid insufficiency nor a latent tetany interferes with the healing of a gastric lesion in the dog or the cat.

Creatinuria in Tuberculosis.—Examination of the urine of fifteen patients done by Thompson indicates the presence of creatinuria in pulmonary tuberculosis, febrile or otherwise. Repeated analyses demonstrated not only a fluctuation in the creatine output over a period of time but a variation in the total creatinine production as well. Creatinuria may not exist in all cases or in all stages of the disease, but its omission is rare. The cause of this urinary abnormality is undetermined, but since it persists after the disease is arrested Thompson suggests that it may be due to and may be a measure of certain tissue destruction during the active phase. The phenomenon of creatinuria in tuberculosis is not confined to man.

Chronic Strophanthin Poisoning.—Two cases of strophanthin poisoning are recorded by Hyman and Lowen; the first is one of acute poisoning while the second is one of chronic self-administered strophanthin overdosage. In both cases, disturbances of cardiac rhythm occurred; these disturbances were extrasystolic in origin and represented a state of hyperirritability engendered in the myocardium as the result of this drug. Withdrawal of the strophanthin preparation resulted in prompt clearing up of the cardiovascular disturbances. The second case is interesting in that it presents an unusually long history of self-administration of strophanthin over a period of four and one-half years, during which time about 300 grains (20 Gm.) of the drug was taken. The withdrawal of the drug was accompanied by a reduction in the number of ectopic points from which the extrasystoles arose; this reduction produced certain unusual disturbances of rhythm. Examples of triphasic and diphasic rhythm are shown and the hemodynamic factors responsible for these phenomena are explained. The intravenous administration of dextrose did much to accelerate the return to normal sinus rhythm. The differential diagnosis of extrasystolic arrhythmia from multiple ectopic foci and auricular fibrillation may be impossible without graphic assistance; the importance of the correct diagnosis lies in the indications for digitalis therapy. Whereas digitalis is indicated in rapid auricular fibrillation, it is strongly contraindicated in the extrasystolic arrhythmia due to overdosage with strophanthin.

Hydatidiform Mole as Cause of Positive Reaction in Aschheim-Zondek Pregnancy Test.—A definite positive Aschheim-Zondek test was obtained by Fanz and Gault with the urine of a woman, three days after having expelled a hydatidiform mole. As there was in this case no actual fetal formation, with development of chorion and decidua only, the authors attribute the pituitary hyperfunction to the internal secretion of one or both of these cell proliferates. On examining the curve of pituitary secretion during amenorrhea of the mother they found the anterior pituitary hormone rising abruptly in amount during the first month, remaining more or less fixed during the next five lunar months, to fall gradually during the later four months and then more abruptly for a week following delivery. This curve is practically coincident with the development of trophoderm and its derivative, the chorion, and in its later half of declination is coincident with the disappearance of Langhans' cells (from the fifth month on). The decidual proliferate of the uterus can hardly be considered a producer of hormone to the anterior pituitary, owing to the fact that it is inherently maternal tissue from the start. It would seem that the anterior lobe of the hypophysis (pituitary body) acts as a cosecretor organ to the growing placental proliferate (possibly layer of Langhans), causing anterior pituitary activity rather than the cells of the fetus per se. As the patient gave no evidence of breast hypertrophy, it would seem that the pituitary hormone has no effect on the breasts of the female.

Effect of Barium Sulphate Meal on Intestinal Protozoa.—Seven persons infested with intestinal protozoa were examined by Andrews and Paulson following their routine barium sulphate meal for periods varying from three to ninety-eight days. The number of certain organisms diminished so that they could not be found for periods varying from none to twenty-three days subsequent to the barium ingestion. They ultimately reappeared; i. e., in no case did the administration of 8 ounces (250 Gm.) of barium sulphate effect an extermination of the organism.

Pharmacology of Brominated Oils.—Brominized esters of the fatty acids from cottonseed oil and brominized sesame oil were administered by Smith and Wikoff to rabbits intratracheally and intraperitoneally. The brominized esters of cottonseed oil were found to be the best for roentgenologic work from both an economical and a chemical standpoint. The oil is eliminated from the site of injection in rabbits within a week. Repeated doses of the brominized esters did not produce deleterious effects.

Journal of Parasitology, Urbana, Ill.

17: 1-60 (Sept.) 1930

Two Fish Trematodes of Genus Hamacreadium (Family Allocreadiidae). O. R. McCoy, Baltimore.—p. 1.
Excretory System of Cercariaeum Lintoni *Miller 1926. C. M. Africa,* Baltimore —p. 14.
Presence of Lancet Fluke, Dicrocoelium Dendriticum (Rudolphi 1819), in Canada. R. L. Conklin and A. D. Baker, Montreal.—p. 18.
Nematodes of North American Amphibia. II. Cryptobranchidae. A. C. Walton, Galesburg, Ill.—p. 20.
New Pronocephalid Monostome from Freshwater Turtle. J. G. Mackin, Urbana, Ill.—p. 25.
Rhigonema Nigella Spec. Nov., Nematode and Plant Commensal, Enterobrus Sp.? from Milliped. L. J. Thomas, Ann Arbor, Mich.—p. 30.
Structure of Esophagus in Trichuroidea. B. G. Chitwood, Washington, D. C.—p. 35.
Structure of Cercaria Infracaudata N. Sp. M. W. Horsfall, Urbana, Ill. —p. 43.
New Hedruris from Diemyctylus Viridescens. A. C. Walton, Galesburg, Ill.—p. 49.

Journal of Urology, Baltimore

24: 343-443 (Oct.) *1930*

Bacteriology of Chronic Prostatitis and Seminal Vesiculitis and Elective Localization of Bacteria as Isolated. A. C. Nickel, Rochester, Minn. —p. 343.
Gonococcal Pyelonephritis. F. J. Parmenter, A. G. Foord and C. J. Leutenegger, Buffalo.—p. 359.
"Rein en Galette" or Shield-Shaped Kidney. G. Pedroso, Havana, Cuba. —p. *389.*
Vesical Diverticulum in Female. F. W. Schacht and J. L. Crenshaw, Rochester, Minn.—p. *393.*
Foreign Bodies in Bladder Following Operations for Cure of Inguinal *Hernia. A. H. Wood, Baltimore.—p. 411.*
Prostatic Obstruction Due to Muscular Hyperplasia. J. A. H. Magoun, Toledo, Ohio.—p. 419.
Cinex-Camera Studies on Urinary Tract: New Method of Functional Investigation. H. A. Jarre and R. E. Cumming, Detroit.—p. 423.
Electric Excision of Prostatic Bar. C. W. Collings, New York.—p. 433.
Suprapubic Bladder Siphon. G. J. Thompson, Rochester, Minn.—p. 441.

Medical Journal and Record, New York

132: 365-416 (Oct. 15) 1930

Prostatitis and Other Foci of Infection in Relation to Low Backache. W. H. Von Lackum and S. G. Major, Rochester, Minn.—p. 365.
Myth About Sterility Following Contraceptive Methods and New Developments in Birth Control Movement. S. A. Knopf, New York.—p. 368.
Consideration of Etiology and Mechanism of Diabetes Mellitus. J. A. Buchanan, New York.—p. 371.
Surgical Considerations of Chronic *Headache.* E. R. Carpenter, Dallas, Texas.—p. 374.
Effect of Stimulants on Drug Poisoning. H. Phillips, St. Louis.—p. 377.
Actinomycosis: Clinical, Pathologic and Bacteriologic Study. H. P. Jacobson, Los Angeles.—p. 379.
Trichophytin Sensitization: Case. M. A. Ramirez, New York.—p. 382.
*Abnormal Phenomena in Bell's Palsy. W. R. Riddell, Toronto.—p. 382.
Extra-Uterine Pregnancy. M. Korshet, San Francisco.—p. 383.
Ruptured Uterus: Seven Cases. J. B. Jacobs, Washington, D. C.—p. 386.
Conservative Treatment of Pelvic Inflammatory Disease and Sequelae. L. Averett, Philadelphia.—p. 389.
Proposed Method for Reducing Maternal Mortality Rate. L. A. de Vilbiss, Miami, Fla.—p. 391.
Hemorrhoids in Pregnancy. J. F. Montague, New York.—p. 393.
Newer Methods of Roentgenographic Contrast Diagnosis in Obstetrics and Gynecology. J. Jarcho, New York.—p. 395.
New Oxytocic and Observations on Endocrinologic Significance. J. S. Diasio, New York.—p. 399.
Cutaneous Medicine and Surgery. H. Goodman, New York.—p. 401.

Abnormal Phenomena in Bell's Palsy.—Riddell relates his personal experiences. Having, from some *unknown cause,* been attacked with herpes zoster, exhibiting itself on the left side of the scalp, and accompanied—or, rather, preceded—by a somewhat violent neuralgia, Riddell soon found himself a prey to Bell's palsy. He developed a hiccup within a few minutes of taking codeine, which kept up almost continuously for three days and another drug was substituted. The facial paralysis of the left side set in in a few days; and in a short time, he found a curious state of both retinas—he never has muscae volitantes. Instead of the retina, when he closed his eyes, appearing *uniform and plain,* it would assume the appearance of a dark colored cloth, of a texture like a Harris tweed, and beautiful in its texture. This, after a time, say half a minute, would become a tartan with a perfectly distinct division into squares, and with a coloring that was not always the same. He was unable to recognize the clan to which the tartan belonged but was perfectly certain that it was not his own, the pattern being much more complicated. Then, sometimes but not always, the tartan would change to a brilliant brocade of gorgeous hues and so remain for a time, changing back again to the Harris tweed or the tartan. There was no regularity in the changes and none of them were subject to the will: they came and went in a whimsical manner. This phenomenon continued until the eyes were clear from all trouble, and then the old familiar plain background appeared again and has continued; no effort brings back the spectacle. Another curious circumstance was that, as soon as the palsy was established, Riddell felt as though the left side of the face were far removed; that it really was no part of him. The nose seemed to be the extreme right side of the head with the right eye just to the left. This also disappeared with the paralysis itself.

Military Surgeon, Washington, D. C.

67: 419-556 (Oct.) 1930

Blood Transfusion. J. F. Gallagher.—p. 419.
Few Recruiting Difficulties. A. G. Wilde.—p. 435.
Relation of Food to Certain Diseases. A. Egdahl.—p. 441.
Saliva-Borne Disease Control: Eradication. J. G. Cumming.—p. 453.
Snake Doctor of Mosquito Coast. H. J. Banton.—p. 474.
U. S. Army Medical Department Research Board. J. S. Simmons.—p. 479.

Missouri State Medical Association Journal, St. Louis

27: *469-514 (Oct.) 1930*

Heritage of Sight: Conservation. G. E. de Schweinitz, Philadelphia.—p. 469.
Diagnosis of Diphtheria. J. Zahorsky, St. Louis.—p. 476.
Treatment of Diphtheria. E. H. Rohlfing, St. Louis.—p. 479.
Prevention of Diphtheria. A. Bleyer, St. Louis.—p. 481.
Prevention and Treatment of Scarlet Fever. H. M. Gilkey, Kansas City. —p. 484.
Underfed Infant. M. J. Lonsway, St. Louis.—p. 489.
Significant Systemic Manifestations of Paranasal Infections. B. J. McMahon, St. Louis.—p. 492.
Streptococcus Viridans Endocarditis Occurring on Malformed (Bicuspid) Aortic Valve. M. G. Smith, St. Louis.—p. 496.
Diagnosis of Myocardial Disease. J. Jensen, St. Louis.—p. 499.

New England Journal of Medicine, Boston

203: 661-708 (Oct. 2) 1930

How Cancer Starts in Cervix Uteri. W. P. Graves, Boston.—p. 661.
Leiomyosarcoma of Cervix. W. H. Lewis, Jr., Boston.—p. 668.
Health Department of Panama Canal. W. P. Chamberlain, Washington, D. C.—p. 669.
Removal of Entire Lower Dental Plate from Esophagus: Case. W. L. Collins, Nantucket, Mass.—p. 680.
Clinical Aspects of Acute Otitis Media and Complications from Viewpoint of General Practitioner. R. H. Marcotte, Nashua, N. H.—p. 681.
Present and Future *Status of General Practitioner in New Hampshire.* A. W. Burnham, Lebanon, N. H.—p. 685.

203: *709-756 (Oct. 9) 1930*

*Coronary Disease in Diabetes Mellitus. H. Blotner, Boston.—p. 709.
Future of Medical Practice. L. K. Frankel, New York.—p. 713.
One-Stage vs. Two-Stage Suprapubic Prostatectomy for Benign Prostatic Hypertrophy. C. S. Swan, Boston.—p. 716.
Surgical Management of Gallbladder Disease. L. R. Whitaker, Boston. —p. 718.
*Interscapulothoracic Amputation: Two Cases. E. M. Daland, Boston.—p. 722.
Suppurative Transverse Myelitis: Case. F. R. Barnes, Fall River, Mass.—p. 725.
*Prevention of Colds by Vaccine Therapy. H. G. Murray, Framingham, Mass.—p. 727.
Fascial Strips in Patella Fractures. P. H. Leavitt, Brockton, Mass. —p. 728.
*Separation of Nates by Adhesive Plaster During Operations for Pilonidal Cyst or Sinus. C. Bearse, Boston.—p. 729.
Progress in Laryngology. G. Berry and L. A. Schall, Worcester, Mass. —p. 730.

Coronary Disease in Diabetes Mellitus.—Blotner presents a clinical study of thirty-five fatal cases of diabetes with coronary artery disease. Coronary sclerosis has occurred in 45 per cent of all cases of diabetes that have come to necropsy in the Peter Bent Brigham Hospital. Coronary disease was found in 21 per cent of a nondiabetic group above the age of 40 years. Ten of the diabetic patients had no symptom referable to the heart before they entered the hospital for the last time. Twenty-five had more or less significant cardiac symptoms, lasting from several months to ten years before they came under observation, but most of them entered the hospital for varying complaints that were not related to the heart. Yet the chief cause of death in 43 per cent of all the series was directly attributable to heart disease. Cardiac infarction caused death in 10 per cent of seventy-seven fatal diabetic cases and in 23 per cent of thirty-five fatal diabetic cases with pathologic evidence of coronary sclerosis. Cardiac infarction is a not uncommon complication of diabetes and may be masked by the clinical picture of diabetic coma. Death from cardiac infarction occurred in three cases shortly after a rapid fall in blood sugar concentration following the administration of insulin. A sudden lowering of the blood sugar concentration by insulin may be dangerous for the elderly diabetic patient with vascular disease; such a patient is likely to have sclerosis of the coronary vessels as part of generalized arteriosclerosis. The sudden lowering of the blood sugar level by insulin may induce coronary thrombosis and a fatal outcome.

Interscapulothoracic Amputation.—The technic of interscapulothoracic amputation is described by Daland. Two cases are reported in which this operation has been done. The operation is indicated in traumatic and malignant conditions of the arm and shoulder in which simple disarticulation would be insufficient to remove the damaged areas. An appliance for reducing the deformity is illustrated.

Prevention of Colds by Vaccine Therapy.—Personal experience has convinced Murray that catarrhal vaccine as a preventive for head colds is uncertain as to results. The treatment might well be offered as a preventive treatment to persons unusually susceptible to head colds, after its limitations have been definitely explained. Any physician giving this vaccine treatment will be impressed with some of the results obtained and disappointed in other cases. In the group who have had the vaccine treatment for three successive years, the number of colds has been reduced from 245 to 95, a percentage gain of 61 per cent, and the average of four colds per person has been cut to 1½ colds per person. This reduction makes the treatment in industry economically sound. One would be safe in saying that the catarrhal vaccine as a preventive of colds seems to be helpful in 50 per cent of the persons taking it.

Separation of Nates by Adhesive Plaster During Operations for Sinus.—Bearse uses strips of adhesive plaster, from 2 to 3 inches in width, and long enough so that one end can be fastened to the operating room table. The other end is attached to the buttock to make traction. They are placed far enough up on the buttocks to insure firm adhesion but should not encroach too closely on the operative field. After the cyst or sinus has been excised and to aid skin apposition, the adhesive plaster is cut from its attachment to the table. The adhesive strips are completely removed from the skin after the completion of the operation.

New Orleans Medical & Surgical Journal

83: 201-278 (Oct.) 1930

Diagnosis and Treatment of Ruptured Gastric and Duodenal Ulcers. G. Darrington, Yazoo City, Miss.—p. 201.
Carcinoma of Stomach. A. Street, Vicksburg, Miss.—p. 205.
Gastro-Intestinal Diseases. J. H. Musser, New Orleans.—p. 208.
Epidemic Vomiting or Intestinal Influenza. R. T. Lucas, Shreveport, La.—p. 213.
Epidemic Cerebrospinal Meningitis. F. M. Acree, Greenville, Miss.—p. 214.
*Incidence of Rickets in Group of Infants in New Orleans and Effort to Prevent Disease in a Certain Number of That Group. R. Crawford and G. R. Williamson, New Orleans.—p. 219.
Low Cervical Cesarean Section. H. E. Miller, New Orleans.—p. 227.
Amytal as Anesthetic. C. T. Chamberlain, Natchez, Miss.—p. 231.
Fracture of Femur. F. H. Hagaman, Jackson, Miss.—p. 233.
Headaches of Nasal Origin. H. R. Fairfax, Brookhaven, Miss.—p. 237.
Plastic Surgery of Orbit. A. G. Wilde, Jackson, Miss.—p. 239.
Early Diagnosis of Optic Atrophy. M. E. Brown, New Orleans.—p. 244.
Corneal Ulcers. W. L. Hughes, Jackson, Miss.—p. 246.
Neuralgia; Tic Douloureux; Treatment by Injection of Quinine Urea. W. A. Lurie, New Orleans.—p. 249.
Present Knowledge of Acute Anterior Poliomyelitis. R. A. Strong, New Orleans.—p. 252.
Intestinal Obstruction Due to Watermelon Seed. A. L. Anderson and C. W. Anderson, Hernando, Miss.—p. 256.

Rickets in Infants in New Orleans.—In the series of cases studied by Crawford and Williamson, they found that cod liver oil administered daily from the tenth day of life did not prevent rickets, but there was a smaller percentage of infants affected in the group receiving the oil regularly than there was in the groups receiving it irregularly or not at all. They found rickets appearing more frequently in the male than in the female and the centers of ossification of the carpal bones developing later in the male than in the female.

New York State Journal of Medicine, New York

30: 1143-1204 (Oct. 1) 1930

Rehabilitation Movement of Hard of Hearing. W. C. Phillips, New York.—p. 1143.
Middle Ear Infection, Common Forms and Management. J. Popper, New York.—p. 1146.
Cervical Inspection and Repair: Primary Cervical Repair. G. A. Wood, Syracuse.—p. 1150.
Application of Radiology to Practice of Pediatrics with Indications and Contraindications. W. L. Mattick, Buffalo.—p. 1156.
Sacro-Iliac Syndrome. G. P. Bergmann, Mattituck.—p. 1159.
Water and Salt Imbalance in High Intestinal Obstruction and Relation to Treatment. T. G. Orr and R. L. Haden, Kansas City, Mo.—p. 1161.
Causes of Asthma by Inhalation. L. Mamelok, New York.—p. 1163.
Periodic Health Examination. W. H. Ross, Brentwood.—p. 1164.

30: 1205-1270 (Oct. 15) 1930

*Mental Symptoms Among Brain Tumor Patients and Brain Tumors Among the Insane. L. M. Davidoff, New York.—p. 1205.
Diagnosis and Treatment of Carcinoma of Breast. W. C. White, New York.—p. 1210.
*Treatment of Arthritis "Rheumatism": Nonspecific Protein Therapy. H. I. Shahon, New York.—p. 1214.
*Are There Indications for Operations on Suprarenal Glands? G. W. Crile, Cleveland.—p. 1217.
*Nature of Icterus Neonatorum. A. Goldbloom and R. Gottlieb, Montreal.—p. 1219.
*Treatment of Acute Syphilis with Bismuth Arsphenamine Sulphonate (Bismarsen). P. A. O'Leary and L. A. Brunsting, Rochester, Minn.—p. 1223.
Anatomic Basis of Personality. I. J. Sands, New York.—p. 1227.
Chronic Splenomegaly of Unknown Origin. H. A. Reimann, Buffalo, N. Y.—p. 1233.

Tumors Among the Insane.—Davidoff asserts that most recognized brain tumor cases exhibit some psychopathologic changes which, if analyzed by the neurologist and the neurosurgeon, might give some suggestion as to the localization of the growth. On the other hand, a certain small percentage of psychotic patients are suffering, undiagnosed, from cerebral tumors that could probably be recognized if the psychiatrist would keep in mind the possibility of such a lesion. These patients may be divided into two groups, (1) those with slowly developing symptoms chiefly of mental deterioration and few neurologic signs, and (2) those with a profusion of neurologic signs in addition to a rapidly disintegrating mentality. The first group usually have slowly growing tumors, meningiomas, for the most part. The second group prove to have rapidly growing gliomas, chiefly glioblastoma (spongioblastoma) multiforme. The diagnosis of tumor in the first group is often missed for lack of investigation of inconspicuous signs; in the second, for failure properly to evaluate the many obvious signs that present themselves.

Treatment of Arthritis "Rheumatism."—Shahon stresses the point that there is no specific treatment for arthritis as yet but several modes of treatment have been adopted by several workers in this field with marked appreciable results. The skilled use of physical therapeutic measures, massage, hydrotherapy, postural exercise, external heat, diathermy, chemotherapy and nonspecific protein therapy, such as typhoid vaccines and milk, have benefited many patients. The milk injection method is the most economical and simplest and insures in many cases marked improvement.

Are There Indications for Operations on Suprarenal Glands?—Crile concludes that indications for unilateral suprarenalectomy or, better, bilateral denervation of the suprarenal glands cannot be finally stated at the present time. In certain cases of residual hyperthyroidism, the symptoms seem to be completely controlled by division of the nerve supply of the suprarenals or by unilateral suprarenalectomy. In cases of intractable peptic ulcer, denervation of the suprarenal glands gives promise of good results. Whether or not these operations will have a wide application is still *sub judice*.

Nature of Icterus Neonatorum.—Goldbloom and Gottlieb review the work done by them in this field. They have been able to demonstrate that icterus neonatorum, which is present, whether visible or not, in all new-born infants, is hemolytic in origin. They have shown that this icterus is related to the destruction of a large excess of red blood cells in the infants' circulation and that the fragility of the red cells shows an increase in the first day or two of life, and a return to the adult normal at the end of the first week of life. The inefficiency of the placenta as a respiratory organ, coupled with the arterial-venous mixture in the fetal circulation, are regarded as at least two of the known factors that contribute to the development of the prenatal polycythemia. Finally, they have shown that, after having produced polycythemia in animals by reducing their oxygen supply, jaundice can be produced when the oxygen supply is returned to normal.

Treatment of Acute Syphilis with Bismuth Arsphenamine Sulphonate (Bismarsen).—O'Leary and Brunsting have had four years of experience in the use of bismuth arsphenamine sulphonate (bismarsen) in the treatment of syphilis, particularly of the acute phases of the disease. Of the 167 patients with acute syphilis who were started on treatment, sixty-four completed a series of at least thirty injections, but only thirty of these patients have been observed recently enough to warrant statistical study. Of these thirty patients, twenty-one have not shown evidence of clinical or serologic relapse, whereas nine have manifested neurorelapse in the form of asymptomatic neurosyphilis. Six patients with chancre whose treatment was started while the Wassermann reaction of the blood was still negative apparently are "cured." Of fourteen patients who presented seropositive primary syphilis when treatment was started, seven have withstood the test of observation and the condition of seven has relapsed in one form or another. None of the nine patients who presented asymptomatic neurosyphilis when first seen with the signs of acute syphilis manifested improvement in the condition of the spinal fluid. It is thus evident that the incidence of relapse, particularly in the nervous system, following the use of bismuth arsphenamine sulphonate is higher than with other systems of treatment previously used for acute syphilis. In those cases in which inunctions of mercury were used coincidentally, no material decrease in the incidence of relapse was noted. In a smaller series of cases in which treatment has been administered more recently, decreasing of the interval of time between the courses to two weeks, and giving a minimal of forty injections, there has not been as yet any obvious change in the results of treatment. The encouragement, drawn from the response in a limited number of cases, early in their experience with bismuth arsphenamine sulphonate, has not been substantiated by longer observation in a larger series of cases. That the drug has limited value in syphilotherapy is evidenced by the results of treatment in the seronegative stage of chancre. However, the frequency of neurorelapse has been sufficiently high to offset the results in this small group.

Physical Therapeutics, New York

48: 481-528 (Oct.) 1930

Electrosurgical Methods. W. L. Clark, Philadelphia.—p. 481.
Ozone as Therapeutic Measure. F. B. Carpenter, New York.—p. 489.
Physical Therapy: Static Electricity. M. W. Kapp, San José, Calif. p. 493.
Myelitis with Subsequent Deformity: Case. E. S. Smith, Bridgeport, Conn.—p. 499.
Cancer Prophylaxis Through Physical Therapy Treatment of Diseased Uterine Cervix. A. L. Brown, Winchester, Mass.—p. 507.
Suppuration of Middle Ear. F. H. Humphris, London, England.—p. 512.

Public Health Reports, Washington, D. C.

45: 2429-2508 (Oct. 10) 1930

Effect of Typhoid Vaccine When Given After Infection. J. H. Crouch. —p. 2429.
Undulant Fever. A. V. Hardy, C. F. Jordan, I. H. Borts and G. C. Hardy.—p. 2433.

Rhode Island Medical Journal, Providence

13: 145-160 (Oct.) 1930

Recent Advances in Otolaryngology. F. W. Dimmitt, Providence.—p. 145.
Treatment of Intercurrent Disease in Diabetes. A. M. Burgess, Providence.—p. 150.
Dermatitis Venenata. R. Blosser, Providence.—p. 157.
Restraining Sheet. M. Saklad, Providence.—p. 158.

Southern Medical Journal, Birmingham, Ala.

23: 869-978 (Oct.) 1930

*Infant Mortality in Southern States. B. U. Brooks, Durham, N. C.—p. 869.
Uterine Fibroids: Analysis of 1,000 Consecutive Cases. J. Cohen, New Orleans.—p. 875.
*Parental Blood Serum in Prophylaxis and Treatment of Measles. F. L. Bivings and R. W. Dickson, Atlanta, Ga.—p. 880.
Uveal Pigment in Diagnosis and Treatment of Sympathetic Ophthalmia. W. D. Gill, San Antonio, Texas.—p. 885.
Secondary Hypertrophic Osteoarthropathy: Case. J. J. Clark, Atlanta, Ga.—p. 894.
Congenital Elephantiasis. H. T. Nesbit, Dallas, Texas.—p. 898.
*Rare Human Tapeworm, Taenia Confusa: Case. E. C. Faust, New Orleans.—p. 902.
Actinomycosis (Mycetoma): Six Cases in Georgia. J. W. Jones and H. S. Alden, Atlanta, Ga.—p. 906.
Bilateral Double Kidney and Ureters. J. J. Ravenel, Charleston, S. C. —p. 915.
Life and Times of Samuel Preston Moore, Surgeon-General of Confederate States of America. E. R. Wiese, Schenectady, N. Y. —p. 916.
Intracisternal Therapy in Neurosyphilis. C. R. Rayburn, Normal, Okla. —p. 922.
Suprapubic Prostatectomy. E. G. Ballenger, O. F. Elder and H. P. McDonald, Atlanta, Ga.—p. 927.
Cholecystitis and Cholecystography. H. Smith, Greenville, S. C.—p. 929.
Massive Gastric Hemorrhage with Normal Roentgen Findings. R. Drane, Savannah, Ga.—p. 932.
Conservative Treatment of Varicose Veins. H. L. Smith, Washington, D. C.—p. 935.
*Agranulocytic Angina: Case. H. G. Rudner and I. D. Michelson, Memphis, Tenn.—p. 937.
Sprue Treated with Liver. F. Wilkerson, Montgomery, Ala.—p. 947.
Tropical Sprue: Case. R. M. Harris, Miami, Fla.—p. 950.
Volkmann's Contracture. S. Driver, Dallas, Texas.—p. 953.
Plan for Full-Time Teaching in Clinical Departments. J. W. Moore, Louisville, Ky.—p. 956.
Rôle of Part-Time Teacher in Modern Medical School. I. I. Lemann, New Orleans.—p. 959.
Full-Time or Vocational Teacher in Surgery. R. H. Chaney, Augusta, Ga.—p. 961.
New Departure in Medical Curriculum. W. S. Leathers, Nashville, Tenn.—p. 967.
New Departure in Medical Curriculum. C. C. Bass, New Orleans.—p. 968.

Infant Mortality in Southern States.—This study by Brooks shows a higher infant mortality rate in the Southern states from 1924 to 1929 than prevails in other states in the Union, and a higher infant mortality rate in the larger cities of each of the Southern states studied than in other cities of the Union selected at random and widely separated. The factors determining infant mortality rates are presented, and their bearing on conditions in the Southern states is shown. It is asserted that intelligent care is the chief factor in reducing infant mortality. A brief study of the work done in the well-baby clinics of Durham, North Carolina, is presented, showing a resulting decline in the infant mortality rate in that city since the establishment of these clinics.

Parental Blood Serum in Prophylaxis and Treatment of Measles.—Bivings and Dickson use serum instead of whole blood, because the latter is effective in only twice the dosage of the former. Their experience has taught them that comparatively large doses of serum are necessary, and to use twice the amount would be rather strenuous for the patient. The formation of a large discolored area under the skin following the use of whole blood also argues against its use. Their technic of preparation consists simply in withdrawing twice the amount of blood as serum is needed from a parent or other suitable donor who has a definite history of having had measles at some previous time. Infiltrating the skin over the vein and using a large needle prevents premature clotting and allows sufficient blood to flow out into a sterile container. It is then set aside for from twelve to twenty-four hours in a cool place. At the end of this time, the serum is easily withdrawn into a large syringe and injected subcutaneously between the scapulae, where there is much loose tissue and little pain or inconvenience to the patient. Of a total of 103 patients treated, 71 were given complete protection and 32 developed measles in a modified form.

Rare Human Tapeworm, Taenia Confusa.—A case of *Taenia confusa* of more than eleven years' standing is reported by Faust from a native white woman from Louisiana. Thi constitutes the fourth known infection with this tapeworm. Th case history evidence, suggesting raw beef as a source of infe tion, is confirmed by experimental feeding of a suckling calf, which a miliary infection of cysticerci of an "unarmed" tenia was observed three months after feeding. Faust concurs in Chandler's view (1920) that the cases of this infection are considerably more numerous than the few reports indicate, since this would be necessary in order to perpetuate the species. The identity of *T. confusa* and *T. bremneri* is highly probable.

Agranulocytic Angina.—In the case of agranulocytic angina presented by Rudner and Michelson, the characteristic clinical signs were present. All methods advocated as therapeutic agents, such as roentgen ray, frequent blood transfusions and leukocytic extracts, failed to bring about a cure in this case. The patient died.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 505-548 (Sept. 27) 1930

Filtrable Viruses and Practical Medicine. S. P. Bedson.—p. 505.
Migration and Health. J. S. Purdy.—p. 508.
*Radium Treatment of Epitheliomata of Skin. R. Ward.—p. 511.
Treatment of Late Syphilis with Bismuth. T. Ferguson.—p. 513.
*Puerperal Sepsis. E. F. Murray.—p. 514.
*Respiratory Complications Following Surgical Operations During Four-Year Period. D. C. Aikenhead.—p. 515.
*Influence of Lactation on Ovulation and Estrus. J. T. Cunningham.—p. 516.
Foreign Body (Wood Splinter) in Cavernous Sinus. C. F. Fernando.—p. 517.
Treatment of Rhinophyma. R. S. Coldrey.—p. 518.
Somnifaine Poisoning: Case. N. C. Hypher.—p. 518.

Radium Treatment of Epithelioma of Skin.—Of 1,773 consecutive cases of squamous-cell epithelioma treated at the Radium Institute, London, Ward says 91 per cent of the hypertrophic type were apparently cured; 77 per cent of the flat type and 38 per cent of the deeply ulcerated type. Many of the last group were such that healing was out of the question, owing to extensive involvement of bone and cartilage.

Puerperal Sepsis.—Murray urges that there should be a larger proportion of fully trained nurses on the staff of maternity hospitals, especially for the nursing of suspect and septic cases. Clean and suspect cases cannot be nursed together; the former are endangered, and the latter tend to be neglected. The problem of isolation is one of great anxiety, as many maternity hospitals are quite unequal to the demand made on them. They were designed before the notification of puerperal pyrexia produced such an influx of febrile cases requiring hospital treatment, which at times tends to convert them into fever hospitals. The following would appear to be the minimum requirements of a modern maternity hospital: (1) an admission room for preliminary classification; (2) examination rooms and wards for (*a*) clean, (*b*) suspect cases, (*c*) cases of genital sepsis, and (*d*) cases of extragenital sepsis. Each of the four units should have its own labor ward and nursing staff.

Respiratory Complications Following Surgical Operations.—The statistics given by Aikenhead consist of 33,066 operations performed during the four years 1926-1929; 31,301 operations were under general anesthesia, and the remaining 2,765 were conducted under some form of local anesthesia. There were 55 respiratory complications with 23 deaths. Great care is exercised in excluding from operation patients with a cold or coryza, even if afebrile. More than half of this series received ether dropped on a thick cotton fabric supported by a wire frame; a mixture of two parts of chloroform with three parts of ether was added in any operation in which ether would not induce sufficient relaxation by itself. Nitrous oxide and ethylene were administered by McKesson machines; one in six would be a rough estimate of gas anesthesia. Postoperative ward treatment varied widely according to the individual clinician. The gravity of the operation ranged from excision of a sebaceous cyst, and brief dental extractions, to thousands of appendicectomies and herniotomies, and severe operations on patients with grave renal or cardiac conditions. The ages of the patients ranged from 4 days to over 90 years. Of the 55 patients with respiratory complications, 13 had sequels of a minor nature, 7 infarcts, and there were 6 cases of pleurisy; the remaining 42 suffered from pneumonic processes. These 42 cases included 9 emergency operations; 16 patients (including 7 of the previously mentioned) had marked elevation of the pulse, temperature and respiration at the time of operation. Nine patients were over the age of 60, and in 23 (more than half) the operation involved the gastro-intestinal tract, including herniotomies. Twenty-three of the 42 patients with major complications died, and at the time of operation 19 of these 42 had gross sepsis. Of these 19 patients with sepsis, 14 died (73 per cent). Twenty patients out of the 55 originally mentioned were first-class operative risks with 1 death; this may be compared with the 35 substandard patients with 22 deaths. In 1929, of 1,772 abdominal operations (excepting 242 thyroidectomies), there were 6 respiratory complications with 2 deaths; both patients who died were over the age of 70, and the operations were emergency ones. Aikenhead points out that, taking into consideration the number and gravity of modern surgical procedures, pulmonary complications following operations are less numerous than might be expected. He feels that careful selection of patients, and preoperative measures with equal attention to the matter of after-care, will keep the incidence of respiratory lesions down to the minimum, until such time as a definite cause is known for this dreaded operative sequel.

Influence of Lactation on Ovulation and Estrus.—Cunningham presents evidence to prove that there is no general correlation between the stimulus of sucking and the suppression of estrus, as is assumed by the theory of Crew and Mirskaia. This correlation occurs in the mouse and rat, the ferret, the rabbit and the Virginian opossum, but it is absent in the cow, mare, goat, pig and frequently, if not always, in the human species. The really significant correlation, he says, is between the suppression of estrus and the condition of the new-born young. In those cases in which estrus is inhibited the young are naked, immature, and kept for the greater part of the time enclosed in a warm nest in close contact with the mother. In the other cases in which estrus occurs during lactation, as in the cow and the guinea-pig, the young are born covered with hair and able to run almost at once. If the inhibition of estrus were due to the absorption of soluble substances by the mother from the bodies of the young, either from the mouths of the latter through the teats or from skin to skin, the correlation between the nidicolous immature condition of the young and the suppression of estrus during lactation would be explained, while on the theory of the stimulus of sucking, since this stimulus occurs in the cow as in the mouse, there is no reason for the difference between the two in respect of estrus during lactation. The case of *Didelphys* is especially important, for here the young are born after a gestation of only thirteen days in an early fetal stage of development and are transferred to the pouch, where they become permanently attached to the teats. The skin within the pouch is naked, vascular and glandular, and removal of the young from it has the same effect with regard to estrus as removal of the fetuses from the uterus in higher mammals. The stimulus of sucking maintains the process of lactation in all cases, whether in the cow or in the opossum, and it has been shown in the opossum and in the rabbit that the stimulus determines secretion, not in the whole system but in each gland individually; but it is improbable that it affects the occurrence of estrus.

Lancet, London

2: 779-834 (Oct. 11) 1930

Science of Medicine. Lord Moynihan.—p. 779.
*Addison's Disease: Value of Radiography in Direct Diagnosis. T. Thompson.—p. 785.
*Infective Granulomata and Streptococcal Infection. F. J. Poynton and A Moncrieff.—p. 787.
Principles Regulating Life and Death of Pathogenic Intestinal Bacteria. M. Douglas.—p. 789.
*Spontaneous Pneumothorax: Four Cases. H. E. Symes-Thompson.—p. 791.
Renal Calculus in One Year Old Boy. P. Wiles.—p. 794.
*Desiccated Hog's Stomach in Pernicious Anemia. G. T. Allerton.—p. 795.
*Impending Ischemic Contracture: Case. H. P. Nelson.—p. 795.

Roentgenography in Direct Diagnosis in Addison's Disease.—Thompson urges that roentgen examination of the suprarenals should always be conducted in cases of Addison's disease, because when a positive result is obtained it gives the only direct evidence of disease of the suprarenals. A positive roentgen finding will be obtained only in those cases in which calcareous deposits are present in the tuberculous suprarenal glands. In those cases of Addison's disease which are due to simple atrophy of the suprarenals, no shadows are revealed in the roentgenograms taken of the suprarenal region. Recently he requested roentgenograms in two other cases of Addison's disease, but in both instances they gave negative results. In both cases, also, it was possible to examine the suprarenal glands at necropsy when the cause of the condition was found to be simple atrophy of the suprarenal glands. In those cases of suspected Addison's disease in which pigmentation is absent or for other reasons the diagnosis remains doubtful, a roentgen examination of the suprarenal glands may assist in the true interpretation of the condition.

Infective Granulomas and Streptococcal Infection.—Poynton and Moncrieff relate the case of a healthy child, aged 13 months, who, following a "bad cold," developed glandular enlargements that clinically bore a strong resemblance to those of Hodgkin's disease; postmortem examination revealed conditions, such as the nodules in the liver and the histologic appearances of the glands, that confirmed this diagnosis. At the same time there was evidence of a streptococcal infection, and it is on the relationship of this to the lymphadenomatous condition that the authors focus attention. They hold that if the streptococcal infection had been more virulent at the onset or the child's resistance less, an acute septicemia would probably have developed at once on her "cold" and, on the other hand, if her resistance had been greater the terminal acute features would not have been present but she would have died with cachexia and cardiac failure as in "ordinary" lymphadenoma. In other words, the child's tissues put up an unusual borderline type of response to streptococcal invasion, which closely resembled Hodgkin's disease if, indeed, it was not identical.

Spontaneous Pneumothorax.—In two of the cases reported by Symes-Thompson it was presumed that the pneumothorax was caused by the rupture of an emphysematous bulla, but no demonstrable generalized emphysema of the lungs was present in either instance. Pulmonary tuberculosis was not present in either of these cases or in the third case, in which the pneumothorax was a complication of asthma. The fourth case was one of pulmonary tuberculosis in which spontaneous pneumothorax developed while the patient was undergoing artificial pneumothorax treatment.

Desiccated Hog's Stomach in Pernicious Anemia.—Allerton's patient relapsed after treatment for eighteen months with liver extract, and subsequently recovered when desiccated hog's stomach had been added to his diet.

Impending Ischemic Contracture.—The case described by Nelson presented the classic signs of an impending ischemic contracture—namely, a supracondylar fracture occurring in a child, aged 9, a brawny induration in the arm which was gradually increasing, persistent severe pain, cyanosis of the hand, and limited voluntary flexion of the fingers. After exactly eleven hours a 4-inch longitudinal incision was made on the medial side of the front of the elbow joint. The skin was so tight that it appeared to split apart in front of the knife. The incision was continued through the deep fascia, which was as tightly stretched as the skin. A quantity of dark red fluid welled up from the incision, and after this fluid had been wiped away a small spurting artery, probably the anterior ulnar recurrent, was found in the depth of the wound and ligated. The fracture was inspected, and the position of the fragments seemed to be satisfactory. An examination of the median nerve and brachial artery was now possible. Distal to the elbow the artery was difficult to identify, owing to its great constriction, but on being traced upward both median nerve and brachial artery were seen to be nipped between the surfaces of the fracture. The fragments were gently levered apart and the artery and nerve released. The artery was intact and the pulse returned at the wrist; the nerve was flattened but did not appear to be torn. The margins of the incision could not be drawn together, and a gap of 1 inch remained. The induration in the arm disappeared within three days, and in ten days the limb had returned to its normal size. At no time did the fingers or wrist show any contracture. There was wasting and paralysis of the flexor and abductor pollicis brevis and anesthesia of the volar surface of the index finger. The discharge from the wound was serous and so copious that it soaked through all the dressings. The wound remained noninfected, granulated slowly, and at the end of seven weeks was covered with skin. The movements began to return after three months of complete fixation at 80 degrees flexion. All the muscles of the arm were functioning normally; the flexion and extension of the fingers were normal and the thenar muscles had recovered. There was slight anesthesia on the volar surface of the index finger. After twelve months the range of movement has been gradually increasing and is now about 50 degrees. There is full pronation and supination, and the child uses her arm as she would if it were normal.

Practitioner, London

125: 449-564 (Oct.) 1930

*Place of Radium in Treatment of Breast Cancer. W. S. Handley.—p. 453.
*Treatment of Primary Carcinoma of Breast with Radium. G. Keynes.—p. 462.
*Radium Treatment of Cancer of Breast. S. Cade.—p. 469.
*Modern Treatment of Carcinoma of Breast. D. C. L. Fitzwilliams.—p. 483.
*Aspects of Radium Treatment of Carcinoma. G. L. Cheatle.—p. 496.
Ultramicroscopic Viruses. W. E. Gye.—p. 508.
Intrathoracic and Pulmonary Neoplasms. J. R. Beal.—p. 524.
*Chilblains: Treatment by Melted Paraffin Wax Bath and Ultraviolet Rays. F. H. Humphris.—p. 531.
Treatment of Throat Conditions with Ultraviolet Light and Silver Nitrate. L. Shillito.—p. 536.
Ear, Nose and Throat Emergencies in General Practice. S. Bernstein.—p. 539.

Radium in Treatment of Cancer of Breast.—For operable cases Handley feels that the method of Keynes (extensive and prolonged irradiation by buried radium tubes), which has given him good early results, must be admitted to equal competition with ablational methods. When a patient asks him whether he advises operation or treatment by buried radium he usually offers her the choice, adding that if she has the investor's rather than the speculator's temperament she will choose operation combined with selective irradiation. He would not, however, give such freedom of choice to all patients. In patients advanced in years, and with myocardial degeneration or organic disease of the heart, a heavy dose of radium may cause irregular and rapid cardiac action, or pericarditis. A left-sided carcinoma in such a patient can be more safely treated by operation than by radium. Speaking on the use of diathermy in breast cancer, he says: The method represents not a mere optional variation in technic but a striking improvement. Its advantages depend mainly on three peculiarities of diathermic cutting: (*a*) It seals most of the small vessels as it cuts them and so minimizes loss of blood; (*b*) it divides nerves almost without stimulating them and leaves their exposed ends insensitive; (*c*) during the operation it supplies heat to the body generally and especially to those parts which are exposed for the purposes of the operation. The three principal causes of operative shock, namely, violent nerve impressions, loss of blood and loss of heat, are thus minimized.

Treatment of Carcinoma of Breast with Radium.—Keynes feels that the day has now passed when all radiologic treatment was kept strictly within the province of the radiologist. Interstitial radium treatment (as used by him) is a surgical procedure, though it requires knowledge of the properties and dangers of radium for its successful use. Further than this, it often needs to be combined with purely surgical treatment, and Keynes makes no claim that radium has superseded surgery. He believes, however, that radium is the treatment of choice as a first stage in the majority of patients. For those with "inoperable" tumors, it is the only possible treatment. For those with the earliest growths it is the preferable treatment, because the patient is restored to normal. For those with advanced but still operable tumors, no known form of treatment can be relied on to save the patient's life, because in most cases the disease has already passed beyond the local—that is, the curable—stage. On the whole there is less suffering for the patient with primary radium treatment than with operation. He reports on 130 patients with primary carcinoma of the breast treated with radium.

Radium Treatment of Cancer of Breast.—Cade discusses his experience with the Keynes plan of treating carcinoma. He says: The position of radium therapy in the treatment of cancer of the breast cannot be definitely assessed till five-year periods are available for operable cases. That radium can provide complete retrogression of the disease has been proved in numerous cases. The permanence of results is greatly enhanced by the two-stage treatment. Radium therapy as the first measure in the treatment of an operable case is entirely justifiable, and the earlier the case the better is the result. For inoperable cases and for recurrences, radium offers a great deal of palliation and cannot be equaled by any other method of treatment.

Modern Treatment of Carcinoma of Breast.—Fitzwilliams, too, is an ardent advocate of radium therapy of carcinoma. However, instead of leaving the needles in six or seven days on a single occasion as formerly, he now leaves them in for five or six days, then gives the patient one or two weeks' rest and reinserts them, but not in the same place. The gridiron is arranged differently this time, and the surrounding needles are placed between their former situations. Later, surface irradiation is given as usual. The patients wear a plaque of Columbia paste with radium applied to the outer side, for a time varying from two to four weeks according to the number of hours a day they wear it and their sensibility to radium, a well marked erythema with superficial desquamation being aimed at.

Aspects of Radium Treatment of Carcinoma.—Cheatle reports on cytologic examination of irradiated tissues. There is comparative freedom from the effects of irradiation of the normal epithelium, although it was in the area of 1 cm. round a needle containing 2 mg. of radium for eight days. The irradiations appear to have a specific action on the malignant cells. All the cells were within an area of 1 cm. of the source of radiation. A large proportion of malignant cells are not actually destroyed. Many of the undestroyed cells are so degenerated that they may not recover. There are other malignant cells which may either recover or may never become capable of multiplication, having lost their malignant character. It cannot be said that irradiation increased the number of lymphocytes, polymorphonuclears or macrophages in the irradiated area, since precisely similar pictures can be seen in unirradiated squamous epitheliomas of the lip. The type of degeneration induced by irradiation of the malignant cells is an unusual one. Abnormal mitosis has actually occurred during their irradiation.

Chilblains Treated by Melted Paraffin Wax Bath and Ultraviolet Rays.—The melted paraffin wax bath was introduced by the late Colonel Littlewood during the latter part of the war. Results of observations and tests have proved that this bath is of considerable therapeutic value in itself and also as a preliminary for massage and other treatment, and its properties make it an important factor in the armamentarium of, modern physical therapeutics. The bath used by Humphris is made of fire-clay 3 inches thick (this is necessary to prevent radiation of the heat); it is 6 feet long, with parallel sides, white glazed inside and over all; it is supported by four white glazed fire-clay pedestals, and has a stoneware draw-off tap, and is fitted up with a self-contained electrical heating apparatus and heat-regulating switch; this is fixed at the tap end of the bath and keeps the molten wax in circulation. The whole heating apparatus is enclosed in white enamel ironwork. Another bath of similar construction, but built vertically, is also used, and smaller baths for the limbs have also been constructed, but in these it is difficult to regulate the heat satisfactorily on account of their smaller capacity. Paraffin wax with a melting point of 120 F. is placed in the bath in large cakes and heated by two temporary coils of wire; when the wax is sufficiently heated, these may be removed and the bath heated at will by the permanent heaters. The patient remains with his hands or feet in the bath for about twenty minutes, at a temperature of about 120 to 130 F. At the end of this time the part under treatment is removed from the bath and allowed to cool. After two or three minutes the wax can easily be peeled off the limb. Other conditions besides chilblains which Humphris has found to respond to this treatment include neuritis, rheumatic and gouty joints, fibrositis, especially in and around small joints, scleroderma following old lymphangitis, cramp in the calf of the leg, intermittent claudication, eczema vesiculosum, phlebitis and Raynaud's disease. Slight mechanical irritants produce bullous elevations of the epidermis over the nodules, or doughy swellings, and those blister-like formations, filled with blood-stained serous fluid, are apt to break down and form atonic ulcers which heal with difficulty and present the commonly called broken chilblain. Here the ultraviolet rays are most useful, and with their use the abraded surface readily heals. The daily application of a mild dose of the rays soon stimulates the sluggish ulcer and promotes healing, and then the cure proceeds as in the unbroken variety.

Archives des Maladies de l'App. Digestif, etc., Paris

20: 761-888 (July) 1930

Acute and Chronic Gastritis: Anatomy and Pathology. M. B. Dahl.—p. 761.
*Diagnostic Value of Xiphoid Pain. A. da Silva-Mello.—p. 808.

Diagnostic Value of Xiphoid Pain.—Da Silva-Mello shows that a painful point located at the xiphoid process is often an important pathognomonic symptom in lesions of the upper part of the abdomen, especially duodenal ulcers. This painful point is definitely localized directly over the cartilage and is the most objective of the abdominal points. It is easily discovered by a physician experienced in the technic of abdominal palpation. One of its chief advantages is that its intensity varies with the aggravations and ameliorations of the condition of the patient, which makes it a valuable guide in measuring the success of the treatment employed.

Paris Médical

2: 237-248 (Sept. 20) 1930

*Value of Dick Test. F. Coste, P. George and Yuen-Si-Tchong.—p. 237.
Hemorrhagic Periduodenitis with Splenomegaly. J. Caroli.—p. 239.
Professional Fluorism. A. Feil.—p. 242.

Value of Dick Test.—Coste et al. performed two series of experiments to determine the value of the Dick test. In the first series, 108 patients were given successive injections of the standard toxin. In the second series 91 patients were injected not only with the standard toxin but with other forms, especially erysipelatous toxins; also several patients were given a single injection of 100 skin units of the standard toxin. The results in the two series of tests were practically the same. In about half of the patients the reactions were either positive or negative to all the injections. In some the reactions were positive at first, then negative after from three to eight injections. In others (about one fourth of the total number) the results were wholly inconstant, shifting from positive to negative and back again. The Dick test cannot therefore be considered as an infallible proof of receptivity or immunity. It is merely a secondary element in the streptococcic theory.

Presse Médicale, Paris

38: 1233-1256 (Sept, 13) 1930

*Arterial Pressure After Section of Spinal Cord. R. Leriche and R. Fontaine.—p. 1233.
*Albumin Content of Blood in Arterial Hypertension and Hypotension. A. Dumas, H. Gardère and Badinant.—p. 1235.
Study of Acid-Base Equilibrium by Urinalysis. R. Goiffon.—p. 1236.
Mucosal and Cutaneous Aurides in Chrysotherapy. F. Lebeuf and H. Mollard.—p. 1239.
*Emetine Treatment in Pulmonary Abscess. J. Fliederbaum.—p. 1242.

Arterial Pressure After Section of Spinal Cord.—Leriche and Fontaine show by operations performed on ten dogs that a high section of the spinal cord does not produce hypotension and vasodilatation in the limbs. When hypotension does follow the operation it is due to loss of blood and to surgical shock, which can be avoided by better operative technic. These results tend to weaken the theory of the supremacy of the bulbar vasomotor center, formerly considered as firmly established. At times, even when the operation has been successful and there was no immediate hemorrhagic condition or hypotension, a few days later a more or less marked hypotension is noted. However, the limbs present normal vascular reflexes produced by various stimuli, and the arterial tension soon becomes normal again. The authors attribute this phenomenon merely to the general physical weakness which necessarily follows a serious operation.

Albumin Content of Blood in Arterial Hypertension and Hypotension.—Dumas et al. determined the albumin content of the blood in a number of patients suffering from arterial hypertension or hypotension by the azotometric method of

Achard. They observed that hypertension is accompanied by hyperalbuminosis and hypotension by hypo-albuminosis. However, the proportion of serine and globulin is not constant. In cases without particular complications the variations in the albumin content affect serine and globulin almost equally, so that the quotient remains the same. In more severe cases, however, such as hypotension accompanied by fever, there is augmentation or absence of diminution of the globulin, which lowers the quotient. Globulin, therefore, seems to be the resistant form of the albumin of blood serum, and the lowering of the quotient is a defense reaction that should be considered as a symptom of grave import.

Emetine Treatment in Pulmonary Abscess.—Fliederbaum used emetine in the treatment of eighteen patients with pulmonary gangrene and fifteen patients suffering from pulmonary abscesses. The intramuscular method of injection proved most successful because it eliminates the sudden shock, lowering of the blood pressure, and other complications caused by intravenous injection as well as the aseptic abscesses sometimes produced by subcutaneous injection. The emetine treatment is often helpful when neoarsphenamine has produced no results. On the other hand, the action of emetine does not take effect for several days, and it is sometimes necessary to use neoarsphenamine at first as a means of attack and then employ emetine to bring the cure to a successful conclusion. The therapeutic effect of emetine is due to its bactericidal action on the flora of the abscess or gangrene, also to the fact that it incites the organism to a more active struggle with the pathogenic bacteria. Its chief advantage over neoarsphenamine is that the latter has a more immediate drastic action, which is dangerous at times.

Revue de Chirurgie, Paris

68: 85-151 (April-May-June) 1930

*Drainage of Choledochus Through Gallbladder in Chronic Pancreatitis. P. Santy, P. Mallet-Guy and V. Pasquier.—p. 85.
*Technic of Fixation of Fractures of Neck of Femur by Means of Screws. R. Bloch.—p. 105.
*Arthrodesis in Tuberculosis of Shoulder. R. Massart.—p. 112.
Intraperitoneal Hemorrhages of Ovarian Origin. M. Haller.—p. 132.

Drainage of Choledochus Through Gallbladder in Chronic Pancreatitis.—Santy et al. believe that drainage of the choledochus through the gallbladder is the operation of choice in the treatment of chronic pancreatitis with jaundice. A cholecystogastrostomy is sometimes advisable, especially in cases in which the diagnosis of chronic pancreatitis is not certain and the existence of cancer is suspected. A cholecystostomy is efficacious in about 50 per cent of the cases; in about 25 per cent, however, a fistula persists, and in 25 per cent the operation is entirely unsuccessful and causes disturbing, though not dangerous, postoperative complications. Kehr's operation, while it usually gives good results, often leaves dangerous ulcers and therefore is not recommended for general use. Drainage of the common bile duct through the gallbladder, however, drains the duct as well as Kehr's operation does and is quite as safe. The authors recommend this method for the majority of cases. It consists of a choledochotomy with direct drainage of the common bile duct by placing a Kehr's tube in the interior of the hepatic duct. The gallbladder and cystic duct, which are usually dilated, form a protective sheath for the exterior branch of the tube. The gallbladder is opened at the bottom and through the opening a tube that has been introduced through the incision in the choledochus and into the cysticus is grasped with forceps and drawn into place.

Fixation of Fractures of Neck of Femur by Means of Screws.—Bloch advocates the use of a simple operative technic that can be performed without any special apparatus or instruments, in contrast to Delbet's method. The reduction of the fracture is made by forced abduction and internal rotation; the abduction should be carried to a maximum, with the summit of the greater trochanter pressed on the iliac bone. This is the same position that is used in the Whitman method. All that remains then is to insert a wood screw, about 2 cm. shorter than the roentgenographic image of the bone, to hold the neck of the femur in position. The best point to insert the screw seems to be slightly below the trochanteric crest and to the rear, which allows it to become securely lodged. The bone may be pierced with a gimlet, a drill or a trepan; Bloch prefers to use a Doyen trepan. The tool is driven into the neck of the femur until it meets a tissue of greater resistance. It is then removed and the screw itself is inserted; usually only a few turns are necessary to fix it securely in place. Because of the simplicity of the method, such operations may be employed much more extensively than was possible in the past. The author recommends the use of spinal rather than local anesthesia.

Arthrodesis in Tuberculosis of Shoulder.—Massart shows that a scapulohumeral ankylosis is not an undesirable operative result since it causes little inconvenience to the patient. A resection, therefore, that results in ankylosis is not unsuccessful if it has succeeded in eliminating the infected parts of the bone. Likewise arthrodesis, skilfully performed, is an extremely valuable method of treating tuberculous scapulalgia. The author prefers an incision from above both in simple resection and in arthrodesis, since this is the most direct and certain and the least vascular course and the one that best exposes the glenoid cavity and the upper extremity of the humerus. He uses multiple osteoperiosteal grafts, usually in the form of an arc from one bone to the other, to fill the cavity left by the removal of the infected portions of the bone. The wound is sutured without drainage, and the shoulder and arm are immobilized in a cast for at least two months; as an additional precaution a small plaster-of-paris spica should be used on the shoulder for another two or three months.

Revue d'Orthopédie, etc., Paris

17: 397-625 (Sept.) 1930

Coxa Vara in Adolescence. G. Huc.—p. 397.
Obstetric Paralysis of Arm. A. Rendu.—p. 459.
Posttraumatic Malacia of Carpus: Pathogenesis. Mutel and Gérard.—p. 531.
*Methylated Antigen in Treatment of Surgical Tuberculosis. B. Blankoff.—p. 538.

Treatment of Surgical Tuberculosis with Methylated Antigen.—Blankoff describes thirty-seven cases of surgical tuberculosis in which methylated antigen was used. Twelve of the patients were cured, eleven showed definite amelioration, ten did not respond to the treatment, and four were still under treatment when the article was written. All the cases in which the treatment was used were longstanding ones in which other methods of treatment had failed. The twelve cures and eleven ameliorations obtained are, therefore, more significant than the ten failures. In addition to the classic method of injection, compresses were found to produce excellent results, especially when the lesions were superficial or easily accessible. A combination of antigen treatment with ultraviolet rays was also used successfully in several instances and materially aided rapid progress. The effects of the methylated antigen treatment are in general inoffensive, although there may be more or less painful local reactions lasting a few days. When the treatment is effective, suppuration always results; this is explained as a defense reaction in which the formation of antibodies produces a state of hyperleukocytosis in the centers of infection and thus aids the elimination of the infected portion of the bone. While the methylated antigen treatment is not always successful, it is proving itself to be a valuable aid in the treatment of surgical tuberculosis and the writer feels that it should be employed more extensively.

Schweizerische medizinische Wochenschrift, Basel

60: 885-908 (Sept. 20) 1930

*Pathogenesis of Pulmonary Edema. P. Wolfer.—p. 885.
*Influence of Weather on Thrombosis and Pulmonary Embolism. E. Fritzsche.—p. 889.
Sympathetic Ophthalmia of Remaining Eye Following Timely Enucleation of Injured Eye. A. Holdener.—p. 896.
Pigeon Scabies in Human Beings. A. Schrafl.—p. 900.
Relations Between Glycemia and Alkali Reserve. R. Choisy, S. Djivanoff and Ceresole.—p. 900.

Pathogenesis of Pulmonary Edema.—Wolfer points out that pulmonary edema may have various causes. First he discusses the mechanical theory. Experimental investigation of this theory has proved that the purely mechanically caused edema occurs only in rare cases. During heart disease, pulmonary edema occurs seldom. However, there are other forms of pulmonary edema that are of mechanical origin; namely, ventilation edema and edema caused by changes in the thorax. The author further discusses inflammatory and toxic edema. The toxic edema may be due either to poisonous products of metabolism or to poisons that are brought into the organism from the outside, such as iodine, alcohol, morphine and particularly gaseous poisons. The condition of the nervous system is also an important etiologic factor in some forms of pulmonary ema. In animal experiments, pulmonary edema has been prod by division of the vagus nerve. The fact that pulmonary na has been observed after traumas of the brain and follow- inflammation of the spinal cord proves that disturbances in the central nervous system may likewise be significant in the ology of pulmonary edema. Not all forms of pulmonary ema can be traced to one etiologic factor; in many cases, everal causal factors are involved.

Influence of Weather on Thrombosis and Pulmonary Embolism.—On the basis of thirty-five case reports, Fritzsche shows that in some cases of thrombosis or of pulmonary embolism meteorological factors are involved.

Archivio di Ostetricia e Ginecologia, Naples

17: 497-546 (Aug.) 1930

Early Diagnosis and Prophylaxis of Cancer of Neck of Uterus. F. Spirito.—p. 497.
*Serodiagnosis of Pregnancy by Means of Sdrodowski Modification of Abderhalden Test. G. V. Segre.—p. 510.
Histogenic Defense Reaction of Uterus. A. Albanese.—p. 523.
*One Thousand Gynecologic Cases in Which Diathermy Was Employed. I. Büben.—p. 536.

Serodiagnosis of Pregnancy by Means of Sdrodowski Modification of Abderhalden Test.—On the basis of his observations, Segre concludes that the serodiagnosis of pregnancy as proposed by Sdrodowski may serve as a diagnostic aid for the diagnosis of pregnancy in view of its simple technic and because it is nearly always positive in the gravid state, though it hasn't a strictly specific value.

One Thousand Gynecologic Cases in Which Diathermy Was Employed.—Büben regards diathermy as a valuable therapeutic aid in many gynecologic cases and particularly in inflammatory disorders of the true pelvis, in which, in addition to effecting an improvement of the pain symptoms, there is sometimes a shrinking of the inflammatory tumor or even its complete disappearance. Other indications for diathermy are gonorrhea in women, especially if it is combined with other bactericidal treatment; also in bladder disorders. It may be employed also to increase the sensitiveness of the tissues to rays in the treatment of cancer; also for diagnostic purposes to decide whether or not an inflammatory tumor of the adnexa is operable.

Policlinico, Rome

37: 1237-1272 (Aug. 25) 1930. Practical Section

Treatment of Inguinal Hernia. G. Baggio.—p. 1237.
*Treatment of Certain Types of Inguinal Hernia by Means of Plastic Surgery Applied to Sartorius Muscle. G. Beccherle.—p. 1239.
Inflammation of Empty Hernial Sac: Case. F. Magnani.—p. 1241.

Treatment of Inguinal Hernia by Plastic Surgery.—Beccherle, on the basis of his operative experience, proposes that, in recurrent hernias and those with a large outlet, use be made of plastic surgery as applied to the sartorius muscle and studied in detail by Comolli.

37: 361-416 (Aug. 15) 1930. Surgical Section

*Influence of Nervous System on "Taking" of Homoplastic Grafts of Striated Muscle. O. Bartoli.—p. 361.
Glutathione in Human Tumors. V. Jura.—p. 371.
Perigastroduodenitis Due to Cholecystitis. G. Mazzacuva.—p. 382.
Multiple Osteogenic Exostoses. A. Zagami.—p. 400.

Influence of Nervous System on "Taking" of Homoplastic Grafts of Striated Muscle.—Bartoli performed experiments with homoplastic grafts of muscular tissue in muscles. Such grafts had given negative results in the hands of other authors, who, however, had not taken the nerve supply of the muscles sufficiently into account. The author therefore tested the neurotization of the homoplastic grafts applied to rabbits and found in an early stage "taking" of the graft and attempts at regeneration on the part both of the graft and of the host. In turn, there were manifestations of degeneration of the muscular fibers and their transformation into connective tissue.

Riforma Medica, Naples

46: 1265-1304 (Aug. 11) 1930

*Hepatotherapy and Function of Spleen. G. Izar and U. Polerà.—p. 1267.
Obliteration of Varicose Veins by Injection of Thrombosing Substances. G. Millul.—p. 1269.
Precocious Syphilitic Nephropathy. R. Rinaldi.—p. 1278.

Hepatotherapy and Function of Spleen.—Izar and Polerà present the first results of a series of experiments to determine the exact effects of hepatotherapy on the function of the spleen. The method employed was simply to count the erythrocytes in the blood before and after the administration of beef liver, beef and epinephrine. They observed that beef caused a diminution of erythrocytes while liver and epinephrine caused a marked increase. The effects of the administration of liver corresponded in every way with the already well known effects of epinephrine. Patients with diffuse fibro-adenia of the spleen who did not react to epinephrine did not react to liver. On the other hand patients with splenic tumors, which cause an intense reaction to epinephrine, showed a correspondingly marked hyperglobulia after the administration of liver. The authors are convinced, therefore, that the increase in erythrocytes produced by hepatotherapy has a distinct relation with the active contraction of the spleen, which subject they intend to discuss more fully in a later article. They include here a tabulation of the results obtained in eleven cases.

Rivista di Clinica Medica, Florence

31: 705-780 (July 15) 1930

*Greater Resistance to Hypotonic Solutions as Shown by Erythrocytes Circulating in Capillaries of Skin as Compared with Those in Veins. A. Montanari.—p. 705.
Crossed Paralysis. A. Terzani.—p. 726.

Resistance of Erythrocytes.—Montanari studied the resistance of erythrocytes in the capillaries of the skin, as compared with the resistance of the erythrocytes in the veins of the arm. He describes first the technic employed and then reports his personal observations, for which he agglutinated the erythrocytes by means of hypotonic solutions, human bile and antihuman amboceptor. He concludes that the resistance to the bile and to the amboceptor is not sensibly different in the two kinds of blood (capillary and venous), whereas the resistance to the hypotonic solutions is constantly and frankly greater in the capillary blood. He mentions the causes that may determine this greater resistance. He notes the general uniformity of the capillary resistance and points out the practical clinical value of his observations.

Rivista di Patologia e Clin. della Tubercolosi, Bologna

4: 629-724 (Aug. 31) 1930

Is There a Tuberculous Virus That Presents a Form Different from the Tubercle Bacillus? E. Veratti.—p. 629.
Roentgen Aspects of Pulmonary Tuberculosis. F. Perussia.—p. 650.
*Vaccination Against Tuberculosis. D. Ottolenghi.—p. 667.
*Ulcerations of Stomach, Following Tuberculosis of Perigastric Lymph Nodes. G. Dagnini.—p. 676.
*Polypous Tuberculous Endaortitis. A. Tavernari.—p. 693.
Immunity Resulting from Cured Tuberculosis. E. Centanni.—p. 700.

Experimental Trials of Vaccination Against Tuberculosis.—Ottolenghi describes the experimental trials of antituberculosis vaccination by the Calmette-Guérin method, as carried out in Bologna in 1926. He states the criteria followed in the evaluation of the effects: direct scrutiny, clinical research and statistical studies. After calling attention to the difficulties encountered in such studies, he surveys the observations collected thus far, which do not, however, permit, as yet, a final judgment, aside from the fact that the vaccine is harmless. The clinical control tests that are now being made will possibly soon permit a fairly accurate appreciation of the value of the method.

Ulcerations of Stomach, Following Tuberculosis of Perigastric Lymph Nodes.—Dagnini's patient, a woman, aged 48, was admitted to the hospital because of pains in the epigastrium—which became worse after meals; diarrhea occurred from time to time; the temperature ranged from 38.3 to 39 C. (101 to 102.2 F.). The state of nutrition was low; the mucosae and the skin were pale. The erythrocyte count was 2,700,000; the hemoglobin was 40; leukocytes, 14,260. On the skin of the supraclavicular regions, many scars covered with crusts, the results of lymph node suppurations, were observed. Enlarged nodes of soft consistency could be felt in the lateral regions of the neck. There were no enlarged lymph nodes in the inguinal or in the axillary regions. The heart was in normal limits. There was a short systolic murmur but easily detectable at all points of auscultation. There was a rhythmic pulse, frequency 98-100. The maximal blood pressure was 108; the minimal, 85 (Pachon). There was a slight decrease in resonance in the apexes of the lungs, more marked at the left. On auscultation—especially at the base—there were moist râles. The abdomen was slightly painful over the epigastrium. No free fluid was noted in the peritoneal cavity. The liver was enlarged. The spleen could not be palpated Slight traces of albumin were found in the urine. The Wassermann reaction was negative. Examination of the contents of a broken-down lymph node was negative as to tubercle bacilli. The patient complained often of a feeling of heaviness in the stomach, even after moderate repasts, with, at times, rather severe pains. During the last three months, the condition became gradually somewhat aggravated. A roentgen examination of the thorax revealed an opacity in the apexes. Near the hilus were roundish dense shadows that appeared to be due to enlarged lymph nodes. In the right axillary cavity, there was a number of enlarged lymph nodes, of pasty consistency. The overlying skin did not present any special changes. Roentgen examination of the cranium revealed at the site of the squamous portion of the occipital bone an erosion of the external table, with the aspect of a small crater. The condition of the patient grew rapidly worse. The lesions in the region of the neck were extensive and deep. From them oozed a quantity of a dense, creamy substance. The patient died four months after admission to the hospital. At necropsy, the stomach was removed and a long incision was made parallel to the greater curvature. In the part above the lesser curvature, near the region of the cardia, four roundish ulcerations were observed. One was located 2 cm. below the cardia; two were a little farther down, on about the same line; the fourth —larger and deeper—was located a few centimeters below the others. These ulcers were of different size and differed as to their depth in the gastric walls. The mucosa in the vicinity of the ulcers was normal in appearance, being of a grayish red. The ulcers were associated with caseous perigastric lymph nodes on the lesser curvature. The question arises: can secondary gastric ulcerations associated with a tuberculous process in the perigastric lymph nodes be regarded as true tuberculous ulcerations of the stomach? In the author's opinion they may be so considered.

Polypous Tuberculous Endaortitis.—Tavernari describes a case of polypous endaortitis of hematic tuberculous origin, which is of interest owing to the rarity of primary tuberculosis of the large blood vessels. The author interprets the unusual manifestation, as regards its relations with other tuberculous lesions found in the organism, as follows: From a primary focus of infection, doubtless either caseous lymph nodes of the hilus of the lung or torpid ulcerations found in the colon, an invasion of bacilli into the circulation took place, which caused changes of a nodular type in the organs attacked (kidneys, liver, pleurae) and, having found their way into the intima of the aorta, caused a specific tuberculous process to develop, which assumed the form of an endaortitis of a polypous character, in which the tubercle bacilli continued to develop.

Semana Médica, Buenos Aires

37: 777-852 (Sept. 11) 1930. Partial Index

Leprosy in Argentina: Six Cases Diagnosed Clinically. P. L. Baliña. —p. 777.
Lead Poisoning in Printers. C. Fonso Gandolfo and A. Zwanck.—p. 792.
Acute Encephalitis in Child: Recovery. J. M. Macera, I. Feigues and J. Pereyra Kafer.—p. 815.
Determinations of Rate of Circulation Volume per Minute in Man in Normal and in Pathologic Conditions. I. Berconsky.—p. 817.
*Ephedrine in Whooping Cough and in Asthmatic Bronchitis. R. Agrelo. —p. 840.
Heterohemotherapy in Hemophilia: Good Results. S. M. Leudesdorf.—p. 842.

Ephedrine in Whooping Cough and in Asthmatic Bronchitis.—Agrelo reports good results obtained in the treatment of whooping cough complicated with asthmatic bronchitis by the peroral administration of ephedrine. He gave 0.01 Gm. twice a day to ten children who were taken ill in a home in which they remained during the entire period of the illness. From the first day of the administration of the preparation the attacks of cough diminished to a half and then to a fourth of the number of attacks that the patients had had before the administration of the preparation. However, the discontinuation of the preparation caused a recurrence of the attacks of cough. The author considers the levorotatory alkaloid of the plant *Ephedra vulgaris* as a useful coadjuvant treatment of whooping cough, especially when it is complicated with asthmatic bronchitis or with bronchiectasia or asthma. The action of the alkaloid, though slower than that of epinephrine, lasts longer. Small doses of ephedrine give better results than large doses of epinephrine. The administration of the drug has not been followed by phenomena of intolerance.

Siglo Médico, Madrid

86: 269-296 (Sept. 13) 1930

*Examination of Contents of Stomach After Test Meal to Determine Functioning of Stomach. F. Enriquez de Salamanca.—p. 269.
Present Status of Problems of Infection. M. R. Castex.—p. 275.
Pathogenesis of Gout: Treatment with Mineral Waters. C. Garcia de Cosa.—p. 280.

Examination of Contents of Stomach.—Enriquez de Salamanca used the Ewald-Boas test breakfast, slightly modified to make a determination of the functioning of the stomach. Qualitative and quantitative estimations of the contents of the stomach (sixty minutes after the test breakfast had been ingested) were made in eight normal persons to ascertain the characteristics of the so-called harmony of the gastric digestion, that is, the proper relations between the evacuatory and the secretory functioning of the normal stomach. Tabular reports show the volume of tea, bread and gastric juice in the stomach, as determined by the emptying of the stomach at that time. The contents of the stomach proved to be 35.6 and 45.28 per cent, respectively, of the amount of food ingested. The amount of normal secretion in relation to the volume of tea and of bread remaining in the stomach proved to be of 98 cc. Attention is called to the dissociated evacuation time of tea and bread from the stomach that may be observed. As a rule tea leaves the stomach before bread does, though rarely the opposite may be observed. The author gives a chart in which he represents the evacuation time (including both rates of evacuation from the stomach of bread and tea) as a straight line. The curve of acidity follows the line of evacuation. In normal persons both lines meet sixty minutes after the test meal is given.

Archiv für Gynäkologie, Berlin

142: 251-546 (Sept. 4) 1930

Mechanism of Labor. K. de Snoo.—p. 251.
*Increased Lactic Acid in Blood in Pregnancy. K. J. Anselmino and F. Hoffmann.—p. 289.
*Increased Formation of Lactic Acid in Muscles in Gravidas. H. Hoffmann and K. J. Anselmino.—p. 310.
Semmelweis Theory of Cause of Puerperal Fever. H. O. Kleine.—p. 324.
Early Infant Mortality: Etiology. A. Peiper.—p. 329.
Roentgenograms Made at Focus-Plate Distance of Six Meters. F. A. Wahl.—p. 337.
*Prolonged Pregnancy: Induction of Labor. R. Köhler.—p. 352.
Febrile Puerperal Diseases: Treatment. A. Schepetinsky.—p. 370.
Cesarean Section in Moscow from 1921 to 1927. W. Ilkewitz, M. Lewi and S. Seltzky.—p. 389.
Interstitial Pregnancy. H. Naujoks.—p. 413.
Termination of Ovulation in Relation to Power of Conception. F. Wittenbeck.—p. 446.
Determination of Pregnancy by Serum Reaction. E. Manoiloff.—p. 474.
Folliculoma of Ovary: Two Cases. V. Lissowetzky.—p. 477.
Slight Changes in Organs in Toxicoses of Gravidas in Relation to Condition of Reticulo-Endothelial System. Ulesko-Stroganowa.—p. 501.
Hysterosalpingography: Use of Iodized Poppy-Seed Oil. R. Schroder and H. Jacobi.—p. 514.
Hydrogen Ion Concentration in Blood of Persons with Cancer. H. Guthmann and P. Wirz.—p. 530.

Increased Lactic Acid in Blood in Pregnancy: Source.—In a study to determine the source of the increased lactic acid in the blood during pregnancy, Anselmino and Hoffmann found that it was not due either to a disturbance in the functioning of the liver or to a production of lactic acid by the placenta. An investigation of the work metabolism of gravidas, however, showed a great increase in the elimination of lactic acid by the muscles. Shortly after labor the elimination of lactic acid by the muscles decreased and the lactic acid content of the blood returned to normal.

Increased Formation of Lactic Acid in Muscles of Gravidas.—According to Hoffmann and Anselmino, the increased elimination of lactic acid by the muscles in gravidas is caused by a hyperfunctioning of the thyroid during pregnancy. Their observations in this connection are supported by the well known fact that thyroxine increases the formation of tic acid and that the lactic acid contents of the blood in avidas during work and during rest correspond exactly with eir values in persons with exophthalmic goiter.

Prolonged Pregnancy: Induction of Labor.—On the basis of his observations in 857 cases, Köhler believes that in prolonged pregnancy the patient should be kept under close observation with exact control of the relation between the size of the fetus and the size of the maternal pelvis. If because of excessive growth of the fetus a disproportion between the two factors appears, labor should be induced for the protection of the mother and the child even if the normal duration of pregnancy has been exceeded only slightly. This rule should be observed strictly, particularly in old primiparas in whom the rigidity of the soft parts constitutes a grave danger with regard to the life of the fetus and in multiparas who give a history of having repeatedly borne dead or overweight children. Emphasis is laid on the fact that prolonged pregnancy alone does not constitute an indication for induction of labor if the fetus is not overweight.

Deutsches Archiv für klinische Medizin, Leipzig

168: 129-256 (Sept.) 1930

Rare Streptococcal Infections: Bacteriology and Clinical Aspect. M. Gundel.—p. 129.
*Effects of Raw Vegetable Diet and of Meat Diet. H. Willi.—p. 156.
Cyanosis Caused by Chronic Stasis in Pulmonary Circulation. R. Schoen and E. Derra.—p. 176.
*Reaction of Vena Cava in Increased Intravenous Pressure. E. V. Allen and I. H. Page.—p. 193.
Dysthyreosis: Blood Picture. S. Thaddea.—p. 199.
Normoglycemic Glycosuria in Simultaneous Injury of Pancreas, Kidneys and Suprarenals by Cancer. F. Peiser.—p. 203.
Multiple Primary Sarcoma of Small Intestine. H. Rösch and J. Gerber.—p. 218.
*Behavior of Gases in Lung. A. J. Anthony.—p. 231.
Activity of Human Leukocytes in Health and Disease. E. von Philipsborn.—p. 239.
Spectral Analysis of Color of Urine with Weiss "Spectrometer." L. Heilmeyer.—p. 244.

Effects of Raw Vegetable Diet and of Meat Diet: Self-Experiment.—Willi found a vegetable diet with a high caloric content and a low sodium chloride content that he maintained over a period of ten weeks disagreeable. He was able to keep on a predominatingly meat diet only fourteen days. On the raw vegetable diet his body weight decreased 2,750 Gm., whereas on the meat diet it increased 1,600 Gm. The blood pressure sank during the raw diet from 122:65 to 90:45 mm. of mercury; on the meat diet it did not show marked deviations. Blood examinations during the raw vegetable diet showed a transient hypochromic anemia and a monocytosis of 15 per cent; on the meat diet there were no important hematologic changes. Examination of the acid-base metabolism showed that there was a definite relation between the excretion of organic acids and the hydrogen ion concentration. On the raw vegetable diet the urine became strongly alkaline and there was a great increase in the elimination of organic acids. On both the raw vegetable and the meat diets the chemical composition of the blood remained constant.

Reaction of Vena Cava in Increased Intravenous Pressure.—According to Allen and Page, the increased intravenous pressure that occurs in cases of myocardial insufficiency and emphysema and produces the pathologic manifestations of passive congestion in the viscera does not cause an increase in the thickness of the wall of the vena cava. From this it is to be concluded that the muscular hypertrophy that develops in the veins of the suprarenals in primary hypertension is not caused by the increased intravenous pressure.

Behavior of Gases in Lung.—Anthony states that the simultaneous use of two neutral gases in respiratory experiments is a suitable method for studying the behavior of gases in the lung. By means of this method of study he demonstrated that the gas mixture in the lung is modified by diffusion and he confirmed the observation that the ventilation of the various parts of the lung in healthy persons is not uniform.

Deutsche medizinische Wochenschrift, Berlin

56: 1555-1598 (Sept. 12) 1930

*Chlorine Metabolism in Pneumonia and Its Therapeutic Significance. B. Scholz.—p. 1555.
Influence of Hypophyseal Preparations and of Various Protein Bodies on Specific Dynamic Action of Protein. E. Herzfeld.—p. 1558.
*Artificial Pregnancy Reaction in Nonpregnant Women: Behavior of Hormone of Anterior Lobe of Hypophysis in Nongravid Organism. K. Ehrhardt.—p. 1560.
Benign Aseptic Suppurative Meningitis During Childhood. E. Schiff.—p. 1562.
B C G Vaccination in Lübeck. M. Kaplan.—p. 1563.

Chlorine Metabolism in Pneumonia: Its Therapeutic Significance.—Scholz points out that in many instances hypertension can be counteracted by reducing the sodium chloride content of the food. This indicates that sodium chloride influences the circulation, and it has been found that its administration effects a stimulation of the vasomotor nerves. In pneumonia, the focus of infection absorbs large quantities of salt, and in the other organs of the body a sodium chloride deficiency develops. It is probable that this lack of sodium chloride is the cause of the vasomotor weakness. In order to stimulate the circulation during pneumonia, it is therefore advisable to supply the organism with sodium chloride. Care should be taken that the diet is not lacking in salt. In addition to this about 10 Gm. of sodium chloride should be given daily. However, because some patients have an aversion to salt it should be administered in the form of sodium chloride injections. The author recommends intravenous injection of 100 Gm. of a 25 per cent solution. In order to avoid tachycardia, the injection should be given slowly. In patients with a weak heart, however, sodium chloride injection is contraindicated. In patients with severe congestion in the pulmonary circulation it is advisable to precede the injection with a venesection. If these precautions are taken complications do not develop, and the stimulation of the circulation, which follows the injection, often has a life saving influence.

Artificial Pregnancy Reaction in Nonpregnant Women: Behavior of Hormone of Anterior Lobe of Hypophysis in Nongravid Organism.—Ehrhardt investigated the behavior of the hypophyseal hormone in the organism of five nonpregnant women who, for therapeutic reasons, had received a blood transfusion from pregnant donors. He found that in the circulating blood the hypophyseal hormone was demonstrable for from two to twenty hours after the transfusion. Analysis of the urine revealed that the hormone was eliminated during the first twenty-four hours. If the hormone is introduced for therapeutic purposes it is therefore advisable not to introduce too large quantities, because they tax the organism and are eliminated in the urine. Small amounts administered at shorter intervals appear to be more practical. The organism of the nongravid woman reacts to the hormone of the anterior lobe of the hypophysis in practically the same manner as the pregnant organism, that is, if the blood stream contains a large amount of the hormone it is eliminated with the urine, and a positive pregnancy reaction can be produced.

Deutsche Zeitschrift für Nervenheilkunde, Leipzig

114: 161-316 (Sept.) 1930

Hereditary Tremor and Longevity, Many Children and Twin Births in Kinsman Families with Heredodegenerative Nervous Diseases. F. Kehrer.—p. 165.
Cerebral Swelling and Brain Tumor. E. Fünfgeld.—p. 209.
Defective Conditions Following Postvaccinal Encephalomyelitis. F. Krause.—p. 214.
Pathogenesis of Raynaud's Disease. M. L. Borowsky.—p. 232.
Etiology of Circus Movements in Man. Z. Reich.—p. 255.
*New Sign of Congenital Syphilis. G. K. Higoumenakis.—p. 288.
Case of Traumatic Neurosyphilis. J. S. Galant.—p. 300.
Case of Gunshot Injury of Brain. A. Isserlin.—p. 305.

Enlargement of Sternal End of Clavicle as Sign of Congenital Syphilis.—Higoumenakis calls attention to a sign of congenital syphilis which, he says, he had first described. The sign, which consists in enlargement of the sternal end of the clavicle, was frequently found among the 1,500 patients examined. The most characteristic twenty-three cases are reported. In all instances, besides this sign, other signs of congenital syphilis were present; in seven instances, the Wassermann reaction was positive. The sign was never observed in healthy persons or in patients with an acquired syphilis. Roentgenograms indicated that there was not an abnormal attitude of the patient or a distended bursa of the sternoclavicular joint, but an exostosis of the internal end of the clavicle. The development of the exostosis is explained by anatomic, biologic and mechanical factors. It is known that the sternal end of the clavicle first consists of connective tissue which is early transformed into bone tissue. The syphilitic spirochetes carried by the blood become as readily localized in the connective tissue as in the lymphatic spaces and in the organs of the fetus. Later, as the result of the frequent movements of the arm and of the consecutive friction of the clavicle against the sternum, an activation of the spirochetes occurs. Their toxins cause an irritation resulting in the appearance of a chronic periostitis and of an exostosis in the sternal end of the clavicle. In thirteen cases in which the patients were left handed, the enlargement was situated on the left clavicle.

Jahrbuch für Kinderheilkunde, Berlin

__129:__ 1-126 (Sept.) 1930

Meroanencephalia and Merocrania: Case. W. Catel and C. A. Krauspe.—p. 1.
Endothelial Asthenia in the New-Born. W. Bayer.—p. 55.
*Anemia in Premature Infants: Iron Treatment. P. Silberschmidt.—p. 63.
Undulant Fever in Child. W. Tobler.—p. 72.
Calcium Content of Blood Serum Following Implantations of Thymus and Spleen. J. H. Wu.—p. 88.
*Diet of Cow's Milk and Goat's Milk in Nurslings. F. Bilek.—p. 98.

Anemia in Premature Infants.—Silberschmidt states that, in well fed premature infants with anemia during the first three months of life, reduced iron is not of value. In nine premature infants in whom he used this form of treatment it increased neither the hemoglobin content of the blood nor the number of erythrocytes. The anemia of premature infants is apparently not caused by an iron deficiency and therefore iron that is administered therapeutically is not utilized.

Effect of Diet of Milk on Guinea-Pig Nurslings.—In a series of experiments on guinea-pig nurslings, Bilek was unable to confirm Sudbolt's observation that when new-born animals are placed on an exclusive cow's milk or goat's milk diet they develop scurvy and anemia. Not only did the animals fail to develop scurvy and anemia but their rate of growth was the same as that of the rest of the litter, which were suckled by the mother.

Klinische Wochenschrift, Berlin

9: 1705-1752 (Sept. 13) 1930

Extragenital Cycle in Woman. F. C. Geller.—p. 1705.
Auriculoventricular Interval. E. Holzlohner.—p. 1708.
*Desensitization Therapy in Bronchial Asthma. H. Petow and E. Wittkower.—p. 1712.
Bacterial Content of Bandage Material and Its Sterilization. Konrich.—p. 1715.
*Experimental Production of Osteitis Fibrosa by Means of Parathyroid Extract. H. L. Jaffe, A. Bodansky and J. E. Blair.—p. 1717.
*Relation Between Stomach and Kidney. H. Steinitz.—p. 1720.
Treatment of Chronic Baryecoia with High Frequency Sound Rays. Hamm.—p. 1723.
Roentgen Changes Simulating Cavern in Apex of Lung. T. Bársony and E. Koppenstein.—p. 1725.

Desensitization Therapy in Bronchial Asthma.—Petow and Wittkower used cutaneous tests and desensitization treatment in 116 patients with bronchial asthma. A tabular report indicates that thirty-six recovered completely, thirty-four were considerably improved, twenty-one showed temporary improvement and twenty-five were not influenced. It was noted that the older the patient was and the longer the asthma had existed the poorer were the chances for recovery. Regarding the cutaneous tests, it is stated that they have been overvalued. Because nonspecific desensitization frequently brings satisfactory results, the practitioner may omit the complicated cutaneous tests. In cases that are refractory to treatment, cutaneous tests should be performed in special institutes. If the specific allergen is known, it is advisable to remove it from the surroundings of the patient. This is the most effective treatment. In cases of hypersensitivity to dust, specific desensitization with dust extract has proved effective. If the specific allergen is not known, nonspecific desensitization with tuberculin or peptone gives favorable results in about 60 per cent of the cases.

Production of Osteitis Fibrosa by Means of Parathyroid Extract.—Jaffe et al. reasoned that if extirpation of a tumor of the parathyroids has a therapeutic effect on an existing osteitis fibrosa, it should be possible to produce changes in the bones by injection of parathyroid extract. Experiments were made on guinea-pigs and on dogs. In guinea-pigs it was observed that, following subcutaneous injection of parathyroid extract, such changes developed in the bones, on which the diagnosis of osteitis fibrosa is usually based, namely: (1) bone resorption and development of Howship's lacuna with numerous osteoclasts, (2) fibrous substitution of the bone marrow, (3) formation of osteoid tissue, and (4) hemorrhages. In dogs it is more difficult to produce changes in the bones, because doses that are large enough to effect the changes frequently cause death. Nevertheless by gradually increasing the doses the typical characteristics of osteitis fibrosa could be produced. During the experiments the animals were on a normal diet. The changes in the bones therefore are caused neither by vitamin deficiency nor by nutritional disorders but must be the result of the injections of parathyroid extracts.

Relation Between Stomach and Kidney.—In a patient with carcinomatous occlusion of both ureters, Steinitz observed a complete anuria lasting twenty-four days. Continuous blood tests revealed that the rest nitrogen, indican, potassium and the phosphates were increased, while the chloride showed a considerable decrease. The calcium and alkali reserves became subnormal only shortly before death. Frequent vomitings were noted as the main symptom. Examination of the gastric juice, obtained following histamine injection, and of the vomit revealed a considerable amount of nitrogen. It may be assumed that the elimination of the poisonous products of metabolism by way of the stomach enabled the organism to tolerate the anuric condition for a long time, without more severe disturbances.

Medizinische Klinik, Berlin

26: 1317-1356 (Sept. 5) 1930

Disturbances in Arterial Function. E. von Romberg.—p. 1317.
Newer Methods and Old Grievances of Anatomists. R. Heiss.—p. 1322.
*Methods of Invisible Writing. B. Langen.—p. 1323.
Evaluation of Wassermann Test. G. Lepehne.—p. 1325.
Multiple and Recurrent Cancers. Kurtzahn.—p. 1329.
*Dreams of Patients with Pulmonary Tuberculosis. E. Hoke.—p. 1331.
Irritation with Constant Current and Chronaxia. H. Lullies.—p. 1333.
Trichobezoar: Difficulty of Differential Diagnosis. E. Prass.—p. 1335.
Determination of Fertilizer Requirements of Soil. E. A. Mitscherlich.—p. 1336.
What Earthquakes Teach Us Regarding Structure of Earth. F. Errulat.—p. 1337.

Methods of Invisible Writing.—Langen describes various kinds of fluids with which invisible writing may be produced and also how they can be made legible. Such invisible writings are frequently used by criminals confined in prisons, and a knowledge of the various methods and how to decipher them is of greatest significance for the criminologist. The author first mentions various chemicals with which invisible writings may be produced. A small amount of nitric acid is added to hydrochloric acid and copper is dissolved in this mixture; then water is added. Writing produced with this solution disappears when dry and becomes visible again when made moist. This is also the case in the so-called Widemann's ink, which consists of 1 part of linseed oil in a dilute ammonia solution. Other fluids with which invisible writing may be produced are milk, sugared water, juices of apples, lemons or oranges, also acacia solution. Writings produced with these substances can be made visible by a slight moistening such as is produced by breathing or by sprinkling them with dust or with ashes. If diluted ink is poured over the paper the writing will also become visible. Writings produced with coffee, tea, or water that has been used for washing, can be made visible by applying heat with a hot flatiron. The author points out that in these methods of writing the glaze of the paper is either destroyed or heightened and that this can be noted when the paper is scrutinized at an oblique angle. Writings that do not affect the glaze of the paper can be produced with saliva or with blood that has been strongly diluted with either saliva or water. Writing produced with diluted blood becomes visible when an alcoholic eosin solution is applied. Saliva writing can be made visible by applying first moisture and then ashes or dust.

Dreams of Patients with Pulmonary Tuberculosis.—Hoke asserts that the progressive destruction effected by the tubercle bacillus affects not only the body of the patient but also the psyche, and if the psyche is affected it is understandable that the dreams, which according to psychoanalysis are the psychic manifestation during sleep, have certain peculiarities. The author inquired into the dreams of about 100 patients with severe tuberculosis. The number of men and women was about equal. The ages of the patients ranged between 20 and 42 years. Dreams of children and persons during the age of puberty were not considered. The author found that patients with severe tuberculosis dream much, that women dream more than men, and that the dreams of educated people are surprisingly similar to those of simple workers. The dreams of tuberculous persons usually indicate fear and anxiety, and not far past but present experiences are their main subject. Wish dreams, sexual dreams and symbolic dreams are rare.

Münchener medizinische Wochenschrift, Munich

77: 1517-1566 (Sept. 5) 1930

Evaluation of Liver Therapy: Diagnosis and Treatment of Pernicious Anemia. W. P. Murphy and H. Brugsch.—p. 1517.
*Relation Between Acute Rheumatic Arthritis and Tuberculosis. C. Reitter and E. Löwenstein.—p. 1522.
Investigations on Hormonal Substance in Brain. L. Haberlandt.—p. 1523.
Experiences with Circulation Hormone. E. Leschke.—p. 1524.
*Promising Method of Sulphur Therapy in Furunculosis. K. Herxheimer, P. Happel and E. Uhlmann.—p. 1526.
Sulphur as Homeopathic Remedy. A. Bier.—p. 1527. C'cn.
Treatment of Varicose Veins by Intravenous Injection of Calorose According to Nobl's Method: Possible Complications and Their Prevention. A. Rosenburg.—p. 1530.
Pyloric Stenosis Without Symptoms. L. Peritz.—p. 1531.
Chemism and Therapeutic Action of Popular Medicinal Plants. L. Kroeber.—p. 1531.
Relation Between Sex Hormone of Anterior Lobe of Hypophysis and Testis. M. Borst, D. Döderlein and D. Gostimirović.—p. 1536.
*Cure of Varicose Ulcers of Leg by Means of Obliteration of Varicose Veins. L. Isaak.—p. 1539.
*Irradiated Milk for Nursing Mothers for Prophylaxis of Rickets. K. Scheer and T. Sandels.—p. 1543.

Relation Between Acute Rheumatic Arthritis and Tuberculosis.—Reitter and Löwenstein point out that the forms of acute arthritis designated as rheumatic are known in their clinical manifestations; however, their etiology is as yet not entirely clear. In previous investigations on fifteen patients with acute or subacute polyarthritis, Reitter detected rod-shaped bodies, with the typical arrangement of tubercle bacilli, in the exudates of the joints. After that both authors employed Löwenstein's culture method to detect tubercle bacilli in the blood of patients with acute rheumatic polyarthritis, thinking that during the fever period, especially in the beginning stage of the disease, tubercle bacilli should be demonstrable. This assumption has proved correct. Nine case reports of patients with acute rheumatic polyarthritis show that it is not necessary that the patients show the usual symptoms of tuberculosis, and that nevertheless tubercle bacilli are present. The authors think that the presence of the tubercle bacilli in these patients is not a mere concurrence but that a causal relation exists between tuberculosis and the acute rheumatic polyarthritis. However, further investigations will be necessary to determine the exact nature of the relation.

Sulphur Therapy in Furunculosis.—In the sulphur therapy for furunculosis described by Herxheimer et al. the patients are placed in chambers into which, by means of compressed air, water containing sulphur is sprayed. The water employed for this treatment is obtained from natural sulphur springs, and beside sulphur it contains numerous other minerals. The authors found that the therapeutic results of this treatment were favorable in most cases. New furuncles did not develop and the existing ones healed rapidly.

Cure of Ulcers of Leg by Obliteration of Varicose Veins.—Isaak asserts that varicose ulcers of the leg are most successfully treated by obliteration of the varicose veins. This he attains by injecting 10 cc. of a hypertonic sugar solution. In order to insure good results it is essential that the section of the vein to be obliterated is as bloodless as possible. This is readily effected by the usual procedures resorted to, such as elevation of the leg, and forcing the blood backward. The author employed this technic in more than 100 cases. He gives detailed reports of nine cases. Not all varicose ulcers yield equally well to this treatment. According to the etiology, the healing tendencies differ considerably. The crater-like ulcerations that are surrounded by a thickened and inflamed skin, and are the result of thrombophlebitis, heal slowly; likewise, the flat ulcers, surrounded by eczematous, erythematous, hypertrophic or hypotrophic skin, heal comparatively slowly. However, the frequently deep and extensive ulcers that are caused by embolic occlusion of the veins, but which are usually surrounded by healthy skin, heal rapidly. Refractory to treatment are those ulcerations that have existed for several decades and that encircle large parts of the leg. The complications of the varicose syndrome, such as the eczema and the ulcer itself, necessitate of course, besides the obliteration of the varicose veins, also local therapeutic measures. The author describes bandages and their application. In the conclusion he points out that ulcerations and eczema may in many instances be prevented by early treatment of varicose veins. As a special advantage of his therapeutic method he considers the fact that most patients can be cured by ambulatory treatment. If contraindications are strictly observed, the treatment is without danger and the results are permanent. Relapses may be avoided by early treatment of newly developing varicose veins.

Irradiated Milk for Nursing Mothers for Prophylaxis of Rickets.—Scheer and Sandels point out that fresh milk, which is intensively irradiated under exclusion of oxygen, in an atmosphere of carbon dioxide, acquires antirachitic properties and the taste and odor remain unchanged. It was found that when from 400 to 500 cc. of such milk was given daily to children with severe rickets, they recovered in from four to eight weeks. An added advantage was that the milk was harmless. Up to now this method of treatment or prophylaxis of rickets was not available for breast-fed infants. Therefore the authors investigated whether the antirachitic factor of irradiated milk could not be transmitted to the child by giving the mother irradiated milk. Premature infants, in whom the early symptom of rickets, craniotabes, is most noticeable, were fed with milk from wetnurses, who drank daily 500 cc. of irradiated cow's milk. The milk of these women was also given to several rachitic rats. Both experiments proved that human milk acquires antirachitic properties if the mother drinks irradiated milk.

Kazansky Meditsinsky Jurnal, Kazan

26: 769-860 (Aug.) 1930

Pathologic Anatomy of Pneumonia in Measles. A. N. Chistovich.—p. 769.
Aneurysm of Heart, Diagnosed During Life: Case. R. A. Luria and M S. Lifshitz.—p. 775.
*Acid-Base Equilibrium in Diseases of Heart and Kidneys. I. M. Lipets and M. M. Pismarev.—p. 778.
Epidemic Cerebrospinal Meningitis. B. I. Gurevich.—p. 786.
Peptic Ulcers in Gastro-Entero-Anastomosis: Two Cases. N. I. Shaviner.—p. 793.
Rare Forms of Horn of Skin. S. G. Gordeev.—p. 797.
Classification of Trachoma. E. G. Klein.—p. 808.
Bordet-Gengou Test in Gonorrhea. Y. D. Pechnikov and A. D. Tsclischeva.—p. 810.
Effect of Malaria Therapy on Psychophysiologic Processes in Dementia Paralytica. V. E. Makarov.—p. 817.
Hygienic Control in High School. O. M. Voidinova.—p. 830.
Health Work Among Students of First Moscow State University. D. M. Rossiysky.—p. 835.

Acid-Base Equilibrium in Diseases of Heart and Kidneys.—Lipets and Pismarev studied the acid-base equilibrium in fifty-four patients with various diseases of the heart and of the kidneys, in whom the alkali reserve, the alveolar carbon dioxide tension, the blood urea and the chlorides in the urine were repeatedly determined and in whom a functional renal test was made. A decrease in the alkali reserve and a parallel decrease in the alveolar carbon dioxide tension were observed during the decompensation period in both heart and kidney diseases, usually more pronounced in the kidney diseases and in direct proportion to the aggravation of the condition of the patients. As a rule a simultaneous decrease in the carbon dioxide in the expired air, expressed by dyspnea, was noted. In the presence of some complications in the lungs (stasis, bronchitis, emphysema, asthma), a dissociation between the condition of the patient and the changes in the alkali reserve and in the alveolar carbon dioxide tension was observed. In nephrosis and in localized glomerulonephritis a decrease in the alkali reserve and in the alveolar carbon dioxide tension was not observed. A change was not found in the chloride content of the urine. The blood urea was increased in almost all patients with diseases of the kidneys, but in only a few patients with diseases of the heart. Usually in these last cases there were some complications in the kidneys, and even then the blood urea did not rise above 56 mg. Hypocapnea always preceded the increase in the blood urea, and the decrease in the blood urea in the course of the disease did not indicate an improvement in the condition of the patient unless it was accompanied by an increase in the alkali reserve and in the alveolar carbon dioxide tension.

Voprosy Onkologii, Kharkov

3: 1-110, 1930

Rous Sarcoma of Fowls. A. V. Reprev.—p. 3.
*Effect of Roentgen Rays on Permeability of Normal Cells and of Cancer Cells. M. A. Magat.—p. 9.
Relation Between Causes of Atypical Mitosis and Mitogenetic Rays of Gurvich. Y. E. Braula.—p. 21
Effect of Various Kinds of Tar on Growth of Experimental Malignant Tumors. I. S. Malinovsky.—p. 23.
Liposarcoma: Genetic Relation Between Lipoma and Sarcoma. N. A. Kraevsky.—p. 25.
Biochemical and Morphologic Characteristics of Streptococci in Cancerous Uterus. D. I. Griney and E. A. Krange.—p. 30.
Effect of Streptococci from Genitalia in Carcinoma of Uterus on Kidneys. S. L. Utevskaya and B. B. Varschavskaya.—p. 35.
Treatment of Carcinoma of Skin. S. A. Holdin and A. P. Shanin.—p. 39.
Carcinoma of Lower Lip. A Paterilo.—p. 46.
Value of Gastro-Enterostomy in Carcinoma of Stomach. V. Korkhov.—p. 56.
Roentgen Rays and Radium Therapy in Carcinoma of Breast. M. P. Domshlak.—p. 64.
*Carcinoma of Ileocecal Valve in Girl Aged Fifteen. F I. Pojarisky.—p. 76.
Occupational Carcinoma of Hand A. A. Epstein.—p. 79.
Necropsy Statistics on Carcinoma. N. G. Pozoev.—p. 89.
Hygiene and Education in Crusade Against Malignant Tumors. Y. V. Zilberberg.—p. 93.

Effect of Roentgen Rays on Permeability of Normal Cells and of Cancer Cells.—The experiments of Magat concerning the effect of roentgen rays on the excretion of phosphates by the living tissues in vitro revealed a considerable difference between the reactions of normal tissue and of cancer tissue. Specimens of normal liver and of Jensen's sarcoma and carcinoma, secured from living rats and mice, were placed in Ringer's solution, kept at 37.5 C. or at room temperature, and the evaluation of the amount of phosphates that had diffused into the Ringer's solution from the tissues was made before the exposure of the specimen to roentgen rays and twenty minutes after the exposure. After the exposure, the excretion of phosphates was observed to increase considerably in the experiments with the specimens of normal liver, whereas no change or even a decrease in the excretion of phosphates was observed in the experiments with the specimens of tumor. On the basis of the results obtained in the other series of experiments made on the same specimens and concerning the effect of sodium cyanide on the excretion of phosphates before and after the exposure of the specimens to roentgen rays, and also on the basis of the effect of the roentgen rays on the acid imbibition in the normal tissue and in the cancer tissue (in the previous experiments of the author) and on the electrical resistance of the normal cells and of the cancer cells (in the experiments of Wassermann), the author explains the results of the experiment by the specific changes in the surface permeability of the cancer cells.

Carcinoma of Ileocecal Valve in Girl Aged Fifteen.—Pojarisky reports a case of carcinoma in the region of the ileocecal valve in a girl, aged 15. The acute onset, the short duration of the disease and the age of the girl made the case interesting, though the occurrence of carcinoma at the age of 15 years is not exceptional; thus, Radko in his statistics reported 145 cases of carcinoma in children aged from 1 to 15 years and forty-nine more cases in young persons aged from 15 to 20 years. The first symptoms of the disease in the case reported (pain in the right iliac region, vomiting and headache) were observed in the previously always healthy girl, at the end of April, 1929, passed quickly and reappeared twice in May. In June she was sent to the hospital with the diagnosis of acute appendicitis. But at the operation a tumor of the cecum was found, and an entero-anastomosis was performed. She died at the end of July, about three months after the appearance of the first symptoms. At the necropsy and the subsequent microscopic examination of the specimens a colloidal carcinoma of the cecum was diagnosed. The maximum of the cancerous infiltration invading the whole cecum was in the region of the ileocecal valve, the opening of which hardly admitted a little finger. Numerous metastases were found in the regional ileocecal and retroperitoneal lymph nodes, notwithstanding the short duration of the disease.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

74: 4289-4400 (Aug. 30) 1930

Contagiousness and Prophylaxis of "Roodvonk," a Kind of Purpura. J. Kuiper.—p. 4290.
*Action of Certain Remedies in Parkinsonian Manifestations. E. D. Wiersma—p. 4301.
Treatment of Rickets with Ultraviolet Rays. E. Gorter and J. J. Soer.—p. 4310.
The Search for the Allergen. G. F. Gezelle Meerburg.—p. 4315.
Where in the Body is Urea Formed? O. L. E. de Raadt.—p. 4323.
Case in Which Urachus Remained Open. C. J. H. de Geus.—p. 4330.
Undulant Fever: Case. R. Hornstra.—p. 4332.

Action of Certain Remedies in Parkinsonian Manifestations.—On the basis of subjective statements, objective observations and examinations, Wiersma recommends the use of stramonium in parkinsonian manifestations. He thinks, in accord with Sternberg, that it is to be preferred to other preparations.

Ugeskrift for Læger, Copenhagen

92: 795-816 (Aug. 21) 1930

Course of Delivery in Primiparas Aged from Forty to Forty-Six. V. Esmann.—p. 795.
*Bornholm Epidemic of Epidemic Myositis. E. Sylvest.—p. 798.
First International Congress for Microbiology. O. Thomsen.—p. 801.

Bornholm Epidemic of Epidemic Myositis.—In Bornholm in June and July, 1930, Sylvest observed twenty-three cases of an epidemic disorder believed to be myositis, with pain in the abdominal musculature on inspiration as the most prominent symptom. The incubation period is less than four days. The disorder as a rule begins with nausea, chills and fever, sometimes with nosebleed and hiccups, and is usually over in a few days, but may give symptoms for several weeks. No complications or permanent defects are known. Similar disturbances are reported from Norway.

92: 817-836 (Aug. 28) 1930

Pigmentation in Form of Brown Ring in Forehead. O. Andersen and T. B. Wernøe.—p. 817.
Sled Dogs in North Greenland as Typhoid Carriers. G. Krogh-Lung.—p. 821.
*Epidemics Resembling Epidemic Myositis Described by Sylvest. H. C. Gram.—p. 826.

Epidemics Resembling Epidemic Myositis Described by Sylvest.—Gram says that certain epidemics of mild fever of uncertain origin or epidemic transient diaphragmatic spasm reported at various times in limited regions are undoubtedly identical with the disturbance described by Sylvest.

92: 837-864 (Sept. 4) 1930

*Treatment of Abortion. A. Grann-Petersen.—p. 837.
*Epidemic Myositis. N. Hansen.—p. 842.

Treatment of Abortion.—Grann-Petersen's investigation in 1,146 cases of abortion during the first six months discloses mortality in 7 cases (0.61 per cent). Of the 1,118 cases (371 febrile, 747 afebrile) with active treatment 5 (0.45 per cent) were fatal; no deaths occurred in the afebrile group. In general the best results were obtained by early emptying of the uterus (within two days). Individualized treatment is advised, according to certain general principles.

Epidemic Myositis.—Hansen reports a disorder of epidemic nature observed by him since June, 1930, and in increasing numbers and with increasingly marked symptoms. He believes that it is the epidemic myositis described by Sylvest. He warns that, in spite of the generally good prognosis, occasional cases may require careful attention.

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CLINICAL SIGNS OF HEART DISEASE

WITH PARTICULAR REFERENCE TO ETIOLOGY *

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CHICAGO

My special purpose in this paper is to stress the importance of a consideration of etiology in the diagnosis of heart disease. Perhaps most of us admit that an etiologic diagnosis is important. Why, then, take time to discuss the question? The answer is that in practice the etiologic feature is largely overlooked.

The classification of heart disease has been, and still is, in a crude state. Chaotic is too strong a word to use regarding it, but it is decidedly unsystematic and unsatisfactory. The same is true of nomenclature. No wonder, then, that there is little uniformity in the diagnoses made by even the best physicians. The condition diagnosed aortic regurgitation by one is called by another syphilis of the aorta and aortic valves; by a third, aortic leak with cardiac hypertrophy but good compensation. The next patient is said by one physician to have mitral stenosis. The disease is labeled auricular fibrillation by a second, heart failure by a third, rheumatic valvular disease by a fourth. One physician stresses the anatomic location of the lesion and its pathologic nature, another the disturbance of function, another some striking clinical phenomenon, a few the etiologic factor.

Why should not physicians employ in diagnosis the classification suggested by the Heart Committee of the New York Tuberculosis and Health Association, which is in conformity with the nomenclature for cardiac diagnosis approved by the American Heart Association? The case of aortic leak might then be called syphilitic aortitis with aortic regurgitation, cardiac hypertrophy, regular sinus rhythm, class 2 A; i. e., activity slightly limited. Here the etiologic and pathologic anatomic features are plainly set forth with the clinical and functional facts also considered. The case of mitral stenosis may be described as rheumatic mitral disease with stenosis, auricular fibrillation with activity seriously limited, classed briefly as class 2 B. Again, etiology, anatomic pathologic lesion and functional capacity are expressed. All of these features may with advantage be included in the diagnosis.

But some physicians may say, "Why all this fuss about these details of diagnosis?" What a practitioner desires to know is, first, whether or not there is organic heart disease or only a cardiac disturbance due to conditions outside the heart, and, second, whether the heart is competent to perform its work. He wishes to tell his patient how he may live so as to maintain for as long a time as possible a fairly efficient heart. The attitude of these physicians is the same as that of the medical student who in ward class, after the subject of the differentiation of the various valvular lesions had been gone over and had been studied in several patients, asked me the embarrassing question, "But, Professor, what difference does it make? And this question must often occur to us as we see the dyspneic, cyanotic and edematous patients with irregular and laboring hearts. What difference does it make whether the valve involved is the mitral or the aortic, whether the myocardium is fibrotic from preceding inflammation or from a degenerative process, whether the hypertrophy is due to a primary valvular or renal cause or is part of an essential hypertension? The fact that confronts the physician is that here is a patient with an incompetent heart, in urgent need of help. Without consideration of the finer points of diagnosis, anatomic or etiologic, he must proceed immediately to measures of relief which will be practically the same, no matter what the cause. So he advises rest, proper diet, elimination, digitalis or morphine as seems appropriate.

Now, this is not really a fair view of the situation; at least it is a narrow view. Of course, the patient's welfare is the prime consideration. He is in immediate danger and must be given first aid without too much discussion of the academic question as to how and why he came by the distressing condition. But it is important that the physician should know causes. The outlook for the future and the subsequent treatment may depend much on such knowledge. A heart muscle incompetent from a suddenly developing infarct due to an acute coronary thrombosis may have an entirely different prognosis and demand a different treatment from the myocardium that has been slowly but progressively failing from the development in it of patches of fibrosis due to gradual occlusion of many coronary twigs. An aorta and aortic valve deformed from a still active syphilis imply an outlook and therapy different from that demanded by the lesions of old-age atheromatosis.

Let me interject another comment. It is sometimes felt by the practitioner that the physican who is meticulous as to diagnosis and classification based on an accurate knowledge of causes and the details of the pathologic and physiologic processes involved is an unpractical man, particularly if he is a physician whose training has been largely in the hospital and laboratory. This is surely wrong. There is no inherent incompatibility between scientific habits of thinking and practical common sense. In fact, some of the most scientifically minded practitioners are the most sound in their practice. Other things being equal. the scientifically trained mind will think more clearly and logically, will direct practical activities more rationally than the so-called

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* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

empiric mind that is bolstered up chiefly by "experience." It is sometimes assumed that empiricism and practical common sense are synonymous. This is by no means always true. Empiricism has no monopoly on common sense. The empiric physician is all too frequently most gullible as to acceptance of fantastic theories, most unthinking or even dangerous in his therapy. In the final analysis, a good deal depends on what kind of a mind and how much of a mind the physician, whether scientific or practical, had to begin with.

In a discussion of clinical signs of heart disease with particular reference to etiology, the questions involved are difficult, the answers somewhat uncertain. Too many cases are encountered in which even with greatest care the cause of the cardiac symptoms may escape detection. But it is only by trial and search that knowledge will come. The search for causes, the comparison of results, together with statistical, clinical and necropsy studies will enable one to be more accurate in the diagnosis than has been the case in the past. To be impressed by the lack of uniformity in diagnosis, one has only to go to the health department of any large city and look over the causes of death as recorded on the death certificates. Syphilis as a cause is rarely put down, largely because of the physician's desire to shield the reputation of the dead man and his family. Pericarditis, endocarditis and myocarditis and angina pectoris are in evidence. But—I am citing Dr. Halsey as authority for the statement—other forms of heart disease, largely the senescent and arteriosclerotic group, make up 88 per cent of cases. On the whole, the diagnoses are vague and lack uniformity. For purposes of study and comparison, they are of little value. But they should be of great value. A statement on the death certificate as to the cause of the disease, or even that the cause was unknown, would be helpful. It would show to the student of statistics that this point had been considered and would permit of deductions that would otherwise be unwarranted.

Only a few suggestions will be here offered. As to how to diagnose etiologically: My purpose is rather to show the necessity and advantage of such a diagnosis. No claim is made as to completeness in the presentation. To go over the entire subject would involve a repetition of the old story of the importance of studying the patient by the familiar methods of history taking, physical examination and repeated observation, with, when necessary, aid from laboratories as of chemistry and bacteriology, from instruments of precision such as the electrocardiograph and x-ray machine, and from specialists. In general, more facts as to etiology will be elicited by the history and physical examination and repeated observation, all of which implies closer personal contact between physician and patient, than by the laboratory and instrumental tests.

The age at which symptoms were noted may give the clue to congenital heart disease. The partiality of rheumatic disease for early years, of sclerotic and degenerative disease for the later years, and of syphilitic cardiovascular disease for the middle period of life is to be remembered. In connection with rheumatism, careful inquiry may elicit a history of mild chorea or suggestive growing pains. Inquiry should be made as to previous purpura or tonsillitis. Syphilis may be betrayed by painstaking search for suspicious facts in the history such as the supposedly innocent sore, alopecia, the stubborn sore throat. Or the obscure precordial distress some years ago with a little fever, the physician puzzled to account for a slightly rapid pulse, and a soft murmur at the base may tend to show that syphilis is the probable cause of the aortic lesion. And, of course, the physical examination for stigmas of this disease in all organs should not be forgotten. In other words, the diagnosis of syphilis of the aorta, valves, coronary artery or myocardium is not to depend on the Wassermann test or the roentgenographic observations alone.

So with acute endocarditis. Bacteriology should, of course, be employed. But the clinical features of rheumatic endocarditis, of the subacute type due to *Streptococcus viridans* or the forms due to pyogenic germs like the staphylococcus are in general so distinct and clear cut as to permit of diagnosis in spite of negative bacteriologic reports.

Then there are the thyroid gland cases. Here again the history and the examination are of fundamental importance. The estimation of the basal metabolic rate is often a deciding factor in reaching a conclusion. Good judgment, however, is necessary in interpreting the results of this test. Slight variations from the normal should not be given too great weight unless checked by tests repeated under carefully controlled conditions. On the other hand, it should not be forgotten that hearts that are large, the seat of murmurs and wildly irregular may have as an aggravating or even an essential cause of the serious disturbance a long perverted overactivity of the thyroid gland.

Other toxic causes may occasionally be recognized—too much tea or coffee. Extrasystoles from tobacco are seen. Digitalis, cocaine and other drugs may give rise to irregularities of rhythm. Some infectious diseases, as diphtheria or scarlet fever, may be associated with arrhythmia which, while primarily bacterial in origin, is really due to the local effect of toxins. The cardiac upsets associated with uremia should be kept in mind. And gastro-intestinal disturbances are at times responsible for the cardiac symptoms that bring the patient to the physician.

There is a group, and it is not a small one, that is commonly called the cardiac neuroses. No organic disease of the heart can be made out; there is no detectable bacterial or toxic factor, no disease in other organs—lung, kidney, thyroid, stomach, bowel—to explain it. Yet the patients are real sufferers, the heart is irritable with a rate tending to be rapid, there are palpitation, precordial distress, breathlessness, fatigue, sweating, flushing of the skin. Cases with the long category of symptoms included under the term neurocirculatory asthenia or effort syndrome show mental variations all the way from slight degrees of apprehension to the extreme types of fear that lead one at times to question whether a phobia has not gotten over into the group of the pathologic psychoses that border on insanity. The search for the cause here is not to be limited to a hunt for evidence of anatomic change in the heart, to increase in size, altered blood pressure, abnormal electrocardiogram, detection of a microbic or toxic agent. These things, of course, should be searched for. Obscure toxic or endocrine disturbances may thus be uncovered. But in these cases there is a chance for the wise physician to put to practice all that he knows about the human mind. He may not be versed in the various schools of psychology, may not know whether he is searching for a cause according to the tenets of William James or Bergson or Freud, but he must go into questions of heredity, of childhood training, of home and social surroundings. Love affairs, skeletons in closets, financial status, day dreams and night dreams, ambitions and failures—all these must be considered.

A concrete case has come to my attention as I am writing this paper. A woman of forty-eight was troubled with fatigue, rapid pulse, a small goiter, a slightly elevated blood pressure, sleeplessness. Certainly there bulked very large in the etiology the fact that she was an introspective nurse, that she had had financial reverses and that she was annoyed by three well meaning but nagging friends, who insisted that the nurse come to live with them, give up her own doctor and change to one of their choosing. She declared frankly to me, as she had to her physician, that she simply could not live happily under the same roof with either one of her two sisters. They got on her nerves. As to living with her friend and former partner, that seemed out of the question because this friend had just married the patient's sweetheart, whom she herself had fondly hoped to marry and whom she still violently loved. Some hypertension, some overwork during a recent influenzal attack, possibly some thyroid influence were causative factors in her condition, but surely a large psychic element was present. The patient frankly said her symptoms, she believed, were chiefly emotional.

This case further illustrates an important feature of diagnosis from a causal point of view. There is often more than one cause. We must determine as nearly as possible what are underlying causes—heredity, so-called constitution, general arteriosclerosis, poor hygienic surroundings—and what is the immediate cause of the present cardiac upset. Proper management often depends on a knowledge of the multiplicity of causes with an appreciation of the relative importance of each. A very important group is the one in which the heart disease depends on some general systemic disease—arteriosclerosis, hypertension or such diseases as nephritis, diabetes or gout.

Lastly, in some cases the exact cause for the cardiac condition cannot be discovered. Etiology is for the time at least unknown. But this fact, as has already been said, should be noted in the diagnosis.

I have consciously strayed a little from the title of this paper. I have done this because it seemed possible in limited space to touch on only a few suggestive facts as to methods of diagnosis from the etiologic standpoint. Also, it seemed quite as important to stress the need for, and the advantage of, such a form of diagnosis. If some system of classification and nomenclature, such as that of the Heart Committee of the New York Tuberculosis and Health Association and the American Heart Association, is followed, it will make for uniformity, clarity and scientific accuracy. We shall thereby become better practitioners and the patient will be the gainer.

122 South Michigan Avenue.

Lean Types of Dyspituitarism.—In all that has been written about fat metabolism in relation to the hypophysis and hypothalamus, emphasis has been laid almost exclusively on adiposity and little said of emaciation. If the adiposity is a paralytic phenomenon, as some assume polyuria to be, should we not expect to see a significant loss of weight as an irritative phenomenon? The condition of adiposogenital dystrophy has so long engaged the attention of clinicians, the fact that there are lean as well as fat types of dyspituitarism associated with hypophysial as well as with hypothalamic tumors, has not received the attention it deserves.—Cushing, Harvey: Neurohypophysial Mechanisms from a Clinical Standpoint, Lister Memorial Lecture, *Lancet*, July 26, 1930.

THE PROGRESSIVE NATURE OF CARDIAC FAILURE*

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> It is of use from time to time to take stock, so to speak, of our knowledge of a particular disease, to see exactly where we stand with regard to it, to inquire to what conclusions the accumulated facts seem to point, and to ascertain in what direction we may look for fruitful investigation in the future.
>
> —*Osler.*[1]

Heart disease is the most frequent cause of death in the United States today. It causes not only many premature deaths but also a great amount of crippling or disabling illness. The control of heart disease is thus a problem the solution of which is of first importance to the public health.

It is obvious that the most successful method of preventing or postponing death from heart disease is to prevent the occurrence, to reduce the severity or to shorten the duration of the conditions leading to heart disease. Speaking in general terms, this means the control of hypertension and vascular diseases of acute rheumatic fever, and of syphilis. The most effective way, then, to attack heart disease is to attack syphilis, hypertension and acute rheumatic fever. This, however, is more easily said than done.

Essential hypertension, for example, is often recognized as such in the early years of the disease and is an abnormality frequently encountered in making periodic physical examinations. A great deal is known about its effects but little about its cause. Indeed, the knowledge of its cause is so limited that it may be compared to the knowledge of the cause of diabetes before the demonstration of its basis in pancreatic dysfunction. With this limitation of knowledge, even when hypertension is recognized early little can be done about controlling it and practically nothing about curing it. It causes such a considerable proportion of heart disease that when an understanding of hypertension has been achieved and translated into effectual preventive measures a most important step in the control of heart disease will have been taken.

The situation in regard to acute rheumatic fever is slightly more encouraging. The problem is under attack from many sides and it may be hoped with some optimism that soon there will be satisfactory means of prevention and cure. The means now used are partially effective in prolonging the duration and improving the quality of life, but they certainly do not constitute a solution of the problem. Prevention of individual cases of rheumatic heart disease is of more value to the individual than prevention of most other types because the relative youth of the patients means the saving of more years of life.

Against syphilis much more potent weapons are available and there is reason to believe that the early, prolonged and intelligent treatment of syphilis by the means at hand would result in a fall in the incidence of syphilitic heart disease. This fall will be brought about, not by people interested primarily in heart disease but by those who are treating early syphilis well.

Recognition of limitations in controlling these conditions makes it clear that in the present state of medical knowledge it is not possible to make an effective attack on heart disease as a whole by preventing its causes. It is, then, urgently necessary to encourage investigation into the problems of its causes: hypertension, acute rheumatic fever and syphilis. Meanwhile physicians must do what they can by the application of what is known about them now.

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* From the Medical Clinic of the Vanderbilt University Hospital.

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Osler, William: Malignant Endocarditis, Lancet 1:415, 1885.

Once heart disease due to these or other causes is established, the rate of its advance may be retarded by wise care. With the best care in the world, however, heart disease of these types will in the long run usually eventuate in heart failure. It is, of course, heart failure which actually results in the death of the patient. This being so, the second method of attack on the problem of heart disease must be the postponement or successful treatment of heart failure.

By heart failure is meant a group of symptoms and signs dependent on congestion in various parts of the body. These symptoms and signs usually include dyspnea (which may be continuous or of the paroxysmal type), engorgement of the neck veins, distention of the liver, peripheral edema and pulmonary edema, and often collections of fluid in the serous cavities. From this discussion are excluded the cases of acute circulatory failure such as are seen in infectious diseases or after hemorrhage. This is a different thing and based on different mechanisms.

The development of the picture of congestive heart failure carries with it an extremely grave prognosis. Complete recovery from the condition is practically unknown and response to treatment, while often striking, is only temporary.

The average duration of life after the onset of the symptoms of congestive cardiac failure is unpleasantly brief. According to Romberg,[2] who studied a large group of poor people with heart failure, the duration of life after the onset of severe symptoms was six months. I have recently analyzed the histories of twenty-five patients who died of heart failure in the Vanderbilt University Hospital and who came to autopsy. The limitation of the study to those patients subjected to postmortem examination made it possible to eliminate cases in which conditions outside the heart were important factors in the patient's death. The average duration of life in these patients after the onset of definite failure was seventeen months. This term is much less than the average duration even of certain incurable and malignant conditions, such as malignant lymphoma. It is, of course, often possible to adjust the patient's life to his disease so that he may survive with reasonable comfort for years, but even under the best conditions when a patient has once developed the classic evidences of what is called heart failure he is sentenced to death and the fatal event is seldom long postponed. Even when the fatal event is postponed, the change usually represents a commutation of sentence to life imprisonment rather than a pardon.

It is important to decide the point as to whether this is necessarily the case. Does heart failure represent an irreversible end stage, is it a road that leads inevitably and quickly to the gate of death, or is it the result of changes which physicians may learn to control and to reverse?

At the outset, it may be admitted that, in spite of the gloomy average, there are people with heart failure who survive for some years. In this series of twenty-five cases, the extremes of duration were three weeks and seven years, and many of the patients had months of comfortable activity after a classic first attack of heart failure. This would indicate that there are at least some stages in which the processes (whatever they are) are reversible and this observation lends the possibility of success to the search for a controllable abnormality as the basis of failure of the heart.

It is first necessary to say a word about the possibility that heart failure is due to lesions or functional disturbances outside the heart itself; in the nervous system, for example, or in the peripheral circulation. It is not to be doubted that an initial attack of heart failure produces changes in the body apart from the heart itself and that some of these changes favor the continuation or recurrence of the manifestations of failure. This is another way of saying that heart failure is the first step of a vicious cycle which, once established, tends to progress. Harrison and Pilcher,[3] for example, have shown that edema not only increases the work of the heart, certainly a bad thing for a failing organ, but leads to a loss of buffers from the body muscles and thus reduces the factors that tend to protect the heart from overwork. Their work on edema has been confirmed by the researches of Barker and Kirk.[4] Eppinger, Kisch and Schwarz[5] have observed changes which they believe indicate a difficulty in the resynthesis of lactic acid in the general musculature. This type of change is certainly important but must, in the beginning, be secondary to a primary fault in the heart itself. It is the nature of that primary fault in the heart with which we are now concerned.

It is true that most cases of congestive heart failure follow long-standing cardiac overwork, particularly overwork in the form of valvular disease or hypertension. Neither the severity nor the duration of the overwork, however, coincides with the severity or with the time of onset of failure, so that it is necessary to seek a factor or factors beside the overload itself. Some factors that accelerate the progression of heart failure are those that increase the load: anemia, chronic pulmonary disease, pregnancy; in other cases failure may progress in spite of an actual diminution of the hypertension originally responsible for it and in spite of a life carried on at a low level of activity.

For about a century, beginning with Laënnec, emphasis has been placed on abnormality of the cardiac muscle as an important immediate cause of heart failure. A great clinician, William Stokes[6] of Dublin, observed in 1854, "It will be seen that, while the diagnosis of valvular disease depends upon the existence and appreciation of certain physical signs, the questions of prognosis and treatment depend upon the condition of the muscular portions of the heart." If it be granted, for the sake of our analysis, that cardiac failure depends on a myocardial abnormality, then the next question is the nature of the myocardial defect. The answer to this question should determine both the possibility and the method of treating the myocardial defect. There is no lack of suggestions regarding the nature of the abnormality in the muscle. Three familiar hypotheses are as follows:

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[2] Romberg, Ernst: Lehrbuch der Krankheiten des Herzens und der Blutgefässe, Stuttgart, 1925, p. 197.

[3] Harrison, T. R., and Pilcher, Cobb: Studies in Congestive Heart Failure: I. The Effect of Edema on Oxygen Utilization, *J. Clin. Investigation* 8:259 (Feb.) 1930; II. The Respiratory Exchange During and After Exercise, ibid., April, p. 291.

[4] Barker, M. H., and Kirk, E. J.: Experimental Edema (*Nephrosis*) in Dogs in Relation to Edema of Renal Origin in Patients, Arch. Int. Med. **45**:319 (March) 1930.

[5] Eppinger, Hans; Kisch, Franz; and Schwarz, Heinrich: *Das Versagen des Kreislaufes*, Berlin, 1927.

[6] Stokes, William: *Diseases of the Heart and Aorta*, Philadelphia, 1854.

1. The basis of heart failure is an actual destructive lesion of myocardial tissue, either grossly or microscopically recognizable.
2. The basis of failure is an interference with the blood supply by obstructive lesions of the vessels of the coronary circulation.
3. Lesions of the specialized conduction tissues may lead to abnormal function and so to failure.

While it is clear that all these types of lesions may play a part, and occasionally (usually in old people) an important one, in the development of heart failure, it is equally clear that no one of them nor any combination of them accounts for a large proportion of the cases coming to autopsy. The classic observations of Aschoff and Tawara[7] and the recent book by Cabot[8] emphasize the fact that in most cases failure of the heart is not to be explained on the basis of anatomically demonstrable lesions in the muscle. It is fortunate that this is so, for such anatomically demonstrable lesions are almost of necessity permanent and often, indeed, progressive. If such lesions are the only basis of failure, the problem of its treatment is probably quite insoluble. But if one agrees that the myocardium is at fault and yet can assign no structural abnormality as the basis of its failure, one may turn the attention to functional changes. Here there is more ground for hope because functional changes are often reversible. What functional alteration in the muscle is to be blamed is not known. Certain reversible changes are known, however, which are definitely associated with some cases of heart failure.

It has been observed for some years by Zondek[9] and by Fahr[10] that certain cases of heart failure are associated with myxedema and are relieved of the cardiac symptoms by the administration of thyroid substance. An even better example is to be found in the cases of heart failure observed in association with beriberi by Scott and Herrmann,[11] by Aalsmeer and Wenckebach,[12] and by Keefer.[13] In these patients the manifestations of heart failure disappeared after the administration of vitamin B. These conditions illustrate a myocardial functional change severe enough to be responsible for heart failure and yet reversible by simple treatment. The hope that animates many workers now is that some functional change like these will prove to be an important factor in the heart failure associated with valvular disease and with hypertension. Work is in progress in many laboratories and clinics directed toward a solution of this problem. In Vienna, Kutschera-Aichbergen[14] has observed a fall in calcium and a diminution in lipoids in the heart muscle of patients dead of failure. In Nashville, Harrison, Calhoun and Pilcher[15] have demonstrated in such cases a diminution of the potassium content of the heart and have brought experimental evidence which relates this fall to fatigue of the muscle. The invariable association of cardiac hypertrophy with failure has been commented on by Christian.[16] It has been suggested that failure may have to do with difficulty of diffusion through enlarged muscle fibers. Such studies as these promise increased understanding of and therefore increased ability to control the changes in the heart muscle which lead to the development of heart failure.

Heart failure usually occurs in successive attacks which come closer and closer together and respond less and less to digitalis and other therapeutic means. The functional changes in the heart muscle may well become irreversible as the condition progresses, but there is reasonable ground for hope that in the early days or weeks of failure they are reversible. The problem is, then, to seek out the change or changes in the heart muscle that lead to failure, in the hope of being able to reverse them.

My purpose in this paper has been to point out the limitation of the present-day methods of the treatment and prevention of heart disease, to establish the point that this limitation is due to ignorance of certain fundamental factors involved, and to suggest certain promising lines of investigation along which useful advances may be made.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HERRICK AND BURWELL

Dr. R. H. Halsey, New York: Heart disease is the greatest problem of today from the standpoint of mortality. Heart disease comprises in morbidity from 5 to 8 per cent of the cases that are taken care of every day. All reportable diseases as now reported comprise only 3 per cent; therefore the importance that heart disease bears to the whole problem of morbidity is obvious. An endeavor should be made to get the community heart-conscious and the profession heart-minded for the reason that heart disease is not one disease but a conglomeration of many. In mortality statistics, 7 per cent of the deaths are grouped under three headings and the remainder or, as they are called, "other diseases," of the heart comprise 90 per cent. In other words, etiology is left entirely out of the consideration of what causes death, and as causes of death such things as mitral stenosis or aortic insufficiency, with which many persons live for many years, are put down. A few years ago I sent a questionnaire to all the hospitals of the state, asking three questions: Of those who died in those hospitals, how many died of rheumatic heart disease, how many died of syphilis, and how many died of other diseases of the heart? The replies indicated that out of 30,000 deaths only 2,000 could be accounted for on the basis of etiology. I went to some of the hospitals of New York and asked for the last ten autopsies and then looked for the etiology as stated by the pathologist and the etiology as stated by the clinician. I found that the clinician does not think of etiology in 70 per cent of the cases. The pathologist thinks of etiology in 60 per cent of his cases of heart disease; in other words, in 40 per cent of the cases he does not consider etiology. In that study it was found that, in 1922, 34 per cent of the death certificates assigned the cause of death to chronic myocarditis, while in 1926 they assigned death in 48 per cent of the cases to that cause. That is, the profession became much more myocarditis-minded.

Dr. Emanuel Libman, New York: Clear as the results of any one investigator may be, it is important that a group come together to clear up their differences. There is even no agreement as to what constitutes a normal valve. Bayne-Jones had found vessels in three of fourteen cases. Dr. Gross in his earliest studies rarely had a positive finding. Later he and Kugel found them in 17 of 85 hearts, and still later Ritter, Kugel and Gross reported an incidence of only 2 per cent in

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[7] Aschoff, L., and Tawara, S.: Die heutige Lehre von den pathologisch-anatomischen Grundlagen der Herzschwäche, Jena, 1906.

[8] Cabot, R. C.: Facts on the Heart, Philadelphia, W. B Saunders Company, 1926.

[9] Zondek, Hermann: Das Myxödemherz, Munchen. med Wchnschr. **65**: 1180, 1918; **66**:681, 1919.

[10] Fahr, George: Myxedema Heart, Am. Heart J **3**: 14 (Oct.) 1927

[11] Scott, L. C., and Herrmann, George R.: Beriberi ("Maladie des Jambes") in Louisiana, with Especial Reference to Cardiac Manifestations, J. A. M. A. **90**: 2083 (June 30) 1928.

[12] Aalsmeer, W. C., and Wenckebach, K. F: Herz und Kreislauf bei der Beri-beri-Krankheit, Wien. Arch. f. inn. Med. **16**: 193 (Jan) 1929.

[13] Keefer, C. S.: The Beriberi Heart, Arch Int. Med. **45**: 1 (Jan.) 1930.

[14] Kutschera-Aichbergen, Hans: Ueber Herzschwäche, Wien. Arch. f. inn. Med. **28**: 209 (Oct.) 1929.

[15] Harrison, T. R.; Calhoun, J. A., and Pilcher, Cobb: The Nature and Treatment of Cardiac Fatigue, South. M. J. **23**: 381 (May) 1930.

[16] Christian, H A The Diagnosis and Treatment of Diseases of the Heart, Oxford Monographs **3**.

700 hearts. Dr. Gross tells me that he now finds it necessary to adopt still stricter criteria and believes that some of the positive valves were not normal. He believes that some of the reported figures are too high because the muscular wedge is incorrectly considered part of the valve. The important fact is that, whether because of previous disease or not, vessels are present in the valves of a number of individuals, and the relationship of this to the incidence of endocarditis should be ascertained. In taking up this consideration, it is essential to understand an important difference between the conditions that go by the names of rheumatic endocarditis and bacterial endocarditis. Dr. Gross and his associates, particularly Dr. M. A. Kugel and Dr. E. Z. Epstein, have found that rheumatic endocarditis, in contradistinction to bacterial endocarditis, begins in the musculofibrous junction. I shall therefore confine my discussion to bacterial endocarditis and particularly to the subacute form. I believe that it can be taken for granted that the condition can be established and kept up by means of embolism into the valve, and that lesions may also be developed by contact. More must be learned regarding the mechanism suggested by Grant, that the important factor is deposition of thrombotic deposits on rough places and clefts in the valves and their later infection by way of the blood current. To my mind, increased tension is a most important consideration. This would explain the increased incidence of the disease and involvement of the aortic valve during the Great War. The great tendency for bicuspid aortic valves to be involved points the same way. A study of the incidence of vessels in bicuspid valves not the seat of bacterial endocarditis is most essential. If vessels were found in greater frequency in them than in the usual tricuspid aortic valves, a crucial decision could be made. Of fundamental importance is the reduced resistance of the individual and the presence of focal infections. Here lies the main solution of the problem under consideration.

Dr. Fred M. Smith, Iowa City: The coronary arteries were at first regarded as strictly end arteries. At a later stage, opinion varied. Investigation has shown that there is usually extensive collateral circulation. There is still a diversity of opinion concerning the incidence of blood vessels in the valves of the heart. I have never seen any reason why these structures should not be provided with a circulation. The general appearance of many of these vessels would indicate that they were originally present. I question whether they are concerned with the incidence of endocarditis.

Dr. S. Calvin Smith, Philadelphia: Concerning the influence of infections on heart failure, we have all seen toxic patients make brilliant recoveries following the successful treatment of local or systemic infections; the younger the patient and the more recent the symptoms of heart failure, the better are the prospects of relief. But there is no uniformity in results. I am taking less and less stock in the idea that heart failure is precipitated by bacteria or toxins, for, certainly, altered chemistry must first transpire in any bodily tissue before that tissue will allow itself to harbor germs; and it might well be that this antecedent perversion of bodily chemistry also affects the heart, producing primary heart failure in a patient, which failure is not at all due to the secondary presence of remote bacteria. I take exception to the statement that heart failure occurs only in enlarged hearts. Heart failure and heart enlargement need not necessarily be associated in the same patient. I have seen hearts fail that were small and undeveloped; and enlarged hearts, on the other hand, may carry on efficiently for years without failing until the patient eventually succumbs from some other cause. Dr. Burwell mentioned "the difficulty of diffusion through enlarged muscle fibers" as a likely cause of heart failure. Need the muscle fibers necessarily be enlarged to encounter difficulty in diffusion? Could not heart failure also result from a paucity or impoverishment or imbalance of those substances that are to be diffused through heart muscle?

Experience permits the hope that the problem of untimely heart failure, in its earlier stages, will some day be solved through an understanding of heart tissue chemistry. Experience suggests that calcium may early abort some cases of auricular fibrillation; magnesium has seemed oddly effective with occasional patients who have recently developed multiple premature systoles; barium has apparently benefited isolated instances of heart block. In sudden heart failure that produced the abnormality of sharply inverted T waves in an electrocardiogram, some such T waves have turned astonishingly upright following a prompt saturating of the patient with calcium, sodium and potassium. Furthermore, ailing patients with high blood pressure readings, who have been on restricted diets for months, may take a new lease on life when their diet is enlarged —thus perhaps permitting the heart to secure from the more comprehensive dietary those substances which it needed for a physiologic diffusion through heart fibers. And may it not be that, among those heart patients who derive surprising benefits from sojourns amid strange scenes, those benefits are due, in part, to a refurbishment from a new dining table of those as yet unknown substances that diffuse themselves through heart muscle fibers? Indeed, may not the success of some spa-treated heart failure patients be accounted for by the chemical replacement of substances from the spa waters?

Dr. Wallace M. Yater, Washington, D. C.: As one of those particularly interested in the fundamental nature of cardiac failure I should like to emphasize the fact that in a great majority of cases of cardiac failure, except those due to acute myocarditis, or when coronary sclerosis is an important factor, there is practically no microscopic evidence which will account for the failure. Those changes which are found in the nature of fatty degeneration and brown atrophy are undoubtedly late changes. The fundamental nature of cardiac failure of course goes back to cardiac fatigue due to a long continued mechanical strain, whether that strain is due to valvular disease or to increased peripheral resistance. The pathologist has done all that he can to help in the determination of the cause of this fatigue and now it is necessary to turn more to other fundamental sciences, physiology and biochemistry particularly. The main difficulties in the past in the use of these sciences have been that a valvular disease or hypertension could not be reproduced experimentally in animals, and also that chemists have been unable to devise methods whereby small enough quantities of heart muscle could be taken for study so that the efficiency of the heart would not be impaired. Recently Dr. Osterberg of the Mayo Foundation has suggested a microchemical method for the quantitative determination of very small amounts of glycogen in as little as 10 mg. of tissue, so that now there is a way at least to study glycogen metabolism in the heart chemically, and we are endeavoring at Georgetown University to establish a method whereby we can determine by biopsy specimens just what is going on in the dog's heart under varying conditions of physiologic and abnormal activity.

Dr. C. Sidney Burwell, Nashville, Tenn.: Dr. Yater's point with regard to the possible involvement of the dextrose metabolism in fatigue of the heart is extremely well taken. The chief point which I wish to make is that such must be made for all sorts of functional disturbances in the heart muscle. In other words, the statement that heart failure is associated with fatigue of the heart is not sufficient. An attempt must be made to define what is meant by "fatigue," and if this can be defined, something may be done about it.

The Food Man Chooses.—Man's need for food is the same the world over and it must be guided by science and not by feelings. Primitive savages, far from being happy and healthy, are often but struggling for existence. The desire for particular kinds of food was a principal cause of man's migrations, while the food he chose did much to mold his character. Fish eaters from their seaside homes were led to explore the ocean and reaped courage and loved peace and quietness, while the meat eater became the oppressor or ruler, an example of which remains today, the Masai and the Kikuyu. It is shown that the best dietaries of England were in vogue during the seventeenth century, after which the rise of the factory-made products produced gradual deterioration. Similar changes are occurring throughout the tropics with serious results. These are retrograde steps, for by comparing our own with the dietaries of Egypt, Nubia, the Hebrews and other nations, we come to the conclusion that theirs were the better balanced and more adequate.—Leitch, J. N.: *Dietetics in Warm Climates*, London, Harrison and Sons, Ltd., 1930.

ASYMPTOMATIC NEUROSYPHILIS

VI. THE PROGNOSIS OF EARLY AND LATE ASYMPTOMATIC NEUROSYPHILIS[*]

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Since the demonstration twenty-seven years ago by Ravaut[1] of the fact that the spinal fluid was abnormal in a high proportion of patients with untreated early syphilis, the significance of such abnormalities has been the source of much speculation and debate. On the one hand, it has been contended that these cytobiologic changes were usually transitory, that they tended to disappear spontaneously, and that they were of little prognostic importance. On the other, it is felt that they represent the actual objective evidence of invasion of the nervous system by the spirochete, and that they are the forerunners of clinical neuraxis involvement in later years. So far, little careful work on this major problem has appeared, most of the published papers being based on opinion alone or on the study, often inadequate, of a small number of patients.

We present evidence, from the course of the disease, in 123 well followed and studied patients, which supports the view that spinal fluid abnormalities in patients with early or late syphilis who show no clinical evidence of neuraxis involvement (asymptomatic neurosyphilis) are of grave prognostic import. The space limitations of this paper prevent a discussion of any but the major issue. A subsequent communication will provide further detailed analysis, with a study of collateral factors involved in the transition of asymptomatic into clinical neurosyphilis, such as race, sex, age, duration of infection and influence of treatment, and will also include a survey of the literature.

In a series of papers from this clinic on the subject of asymptomatic neurosyphilis,[2] certain conclusions have been drawn which must be briefly restated. Invasion of the nervous system probably occurs in the majority of all patients with syphilis, and unless the course of the disease is influenced from without (by treatment), this takes place in most instances within the first year after infection. The ability of the invading organisms to produce clinical neurosyphilis probably depends on the defense mechanism of the individual patient. Involvement of the nervous system, when present, can readily be detected in untreated or treated patients by means of routine laboratory examination of the spinal fluid, though in a few instances spirochetes may actually be present in a spinal fluid that is otherwise normal. Abnormalities in the fluid are almost certainly evidence of actual anatomic damage to the nervous system by the spirochete. If the neuraxis escapes invasion at the time of the generalization of the virus during early syphilis, it will not be invaded at a subsequent date (in treated patients) unless a second or later period of general dissemination of organisms and spirochetemia occurs, or unless by direct extension from a neighboring syphilitic focus, as in gummatous osteitis of the skull. Abnormalities in the spinal fluids of patients with late syphilis (excepting neurosyphilis) represent a persistence of changes inaugurated in the early stages of the infection; their lessened incidence in late as compared with early syphilis is due to the fact that by this time a number of patients have developed frank clinical neurosyphilis.

For convenience in study, patients with early or late asymptomatic neurosyphilis may be divided into three groups, on the basis of the character of the changes in the spinal fluid:[3] group 1 includes patients with minimal serologic abnormalities (increased cell count and globulin content, with other tests negative); group 3, those with maximal changes (the paretic formula); group 2, those with fluids of an intermediate type. This classification is adhered to in this paper.

The material available for analysis as to the outcome is shown in table 1. Fifty-five patients whose admission diagnosis was primary or secondary (early) syphilis and sixty-eight with various types of late syphilis, mostly latent, are included. The original examination of the spinal fluid which permitted the diagnosis of asymptomatic neurosyphilis was made either on admission or more frequently shortly after treatment was begun, though in a few instances it was done after a lapse of from one to three years. In such cases the patients were as free from neurologic symptoms and signs as on admission. The absence of clinical evidence of neurosyphilis was demonstrated by a neurologic examination (including an ophthalmoscopic examination) as part of the general physical survey. However, 22 per cent of the patients complained on admission or at the time of spinal puncture of symptoms possibly referable to the nervous system, such as headache, insomnia, nervousness, "rheumatic" pains and weakness; while 28 per cent showed minor neurologic abnormalities, such as dilated, contracted, slightly unequal or irregular pupils, sluggish pupillary light reaction, or slight to moderate exaggeration, sluggishness, or inequality of the reflexes. Careful sensory examinations were not done. In no case was a clinical diagnosis of neurosyphilis permissible at the time of examination of the spinal fluid. The minor symptoms

TABLE 1.—*Material of Study*

Admission Diagnosis, Type of Syphilis	Total Cases	Spinal Fluid Falls in Group 1	2	3
Early (primary or secondary).......	55	6	33	16
Latent (duration more than 2 years)	52	5	30	17
Late: skin, mucosal or bone lesions	11	3	6	2
Late: visceral (cardiovascular or hepatic)	5	..	4	1
Total	123	14	73	36

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[*] From the Syphilis Division of the Medical Clinic, the Johns Hopkins Hospital.

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[*] Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Ravaut, P.: Le liquide cephalo-rachidien des syphilitiques en periode secondaire, Ann. de dermat. et syph. **4:** 537, 1903.

[2] Moore, J. E.: Studies in Asymptomatic Neurosyphilis: II. The Classification, Treatment and Prognosis of Early Asymptomatic Neurosyphilis, Bull. Johns Hopkins Hosp. **33:** 231 (July) 1922; III The Apparent Influence of Pregnancy on the Incidence of Neurosyphilis in Women, Arch. Int. Med. **30:** 548 (Nov.) 1922 Moore, J. E. and Faupel, M.: Studies in Asymptomatic Neurosyphilis: V. A Comparison of Early and Late Asymptomatic Neurosyphilis, Arch Dermat. & Syph **18:** 99 (July) 1928.

[3] The spinal fluid of practically all patients in this series has been examined as to cell count, globulin (Pandy's reaction), Wassermann test titered from 0.1 to 1.0 cc. in both water bath and icebox, and colloidal mastic test. No attention has been paid to alterations in pressure, and no emphasis laid on a cell count of less than 10, on a trace of globulin as an isolated finding, or on a colloidal curve showing a reading in all tubes of less than 3. We believe such minor changes to be occasionally present in normal individuals, and often to be due to technical error. Our exclusion of such cases from the classification of asymptomatic neurosyphilis accounts for the discrepancy in our figures and those, for example, of Ravaut or Dreyfus, who find from 60 to 80 per cent of abnormal fluids in early syphilis. A detailed description of the criteria of our groups 1, 2 and 3 is given in the papers named in footnote 2.

and signs detailed may occur in many other conditions than neurosyphilis, or even in normal individuals; and, while their presence has been noted, they have not been regarded as invalidating the diagnosis of asymptomatic neurosyphilis.

The spinal fluid having been found to be positive, the patients were treated in various ways and for varying intervals of time, a detailed discussion of which must await the next paper of this series. Efforts have been made to follow them over considerable periods of time with repeated neurologic and spinal fluid studies; and with a few exceptions (twenty-four cases[4]), these data are available for the whole series over periods of observation ranging from one to nineteen years, and averaging seven years. In many cases, spinal fluid studies and physical and neurologic examinations have been repeated several times over a period of years.

The outcome in early asymptomatic neurosyphilis is shown in table 2, and in late asymptomatic neurosyphilis in table 3. The two series are closely parallel in size, even to the subclassification into spinal fluid groups, and the outcome is closely similar whether the spinal fluid changes were discovered early or late.

Table 2.—*Outcome in Early Asymptomatic Neurosyphilis*

Spinal Fluid in Group	Total Cases	Clinically and Serologically Well	Developed Clinical Neurosyphilis (Definite)	Developed Neurosyphilis (Questionable)
1	6	3	..	3
2	33	23	3	7
3	16	4	4	8

Table 3.—*Outcome in Late Asymptomatic Neurosyphilis*

Spinal Fluid in Group	Total Cases	Clinically and Serologically Well	Developed Clinical Neurosyphilis (Definite)	Developed Neurosyphilis (Questionable)
1	8	3	2	3
2	40	27	2	11
3	20	6	8	6

The subheadings of these two tables need explanation. The patient is stated to be clinically and serologically well only when the final neurologic examination showed no abnormalities (or no minor changes which were not present at the time of the original examination) and the spinal fluid was completely negative at an interval ranging from one to eleven years after cessation of all treatment. He is classified as having clinical neurosyphilis if, at any time during the period of observation, he developed objective neurologic or psychiatric changes which make the diagnosis quite obvious. Under the heading "neurosyphilis questionable" are grouped those patients in whom objective neurologic signs, suggestive but not diagnostic of neurosyphilis, had appeared when they had previously been specifically noted as absent; or when the spinal fluid was still positive (usually unimproved or worse) after treatment though neurologic changes were absent or data regarding them lacking.

The number of patients with group 1 spinal fluids (pleocytosis and globulin increase only) is small, and the fact that two of fourteen patients have developed clinical neurosyphilis and that in six others the present status is questionable does not give a true picture of the ultimate fate of patients with minimal fluid changes. Two factors account for this: the fact that puncture was usually done after some treatment had been given, thus making it almost certain that a number of such cases were missed, because cleared up by treatment; and the fact that unfortunately cell counts have been omitted or lost in many cases studied. Were our material large enough to include all patients who at any time during the course of the infection presented these *minimal* fluid changes, it is certain that the incidence of clinical neurosyphilis would be much lower. In many instances, we have observed that these slight abnormalities disappear rapidly under treatment, though we have omitted such patients from consideration in this series because they have been lost sight of and their ultimate fate is unknown. It is, however, permissible to say that such minimal fluid changes are not necessarily fugitive in nature and of no significance for the future. One patient of this group developed epilepsy at the age of 40 with pupillary and reflex changes indicative of neurosyphilis four years after the completion of inadequate treatment, the spinal fluid being then negative except for the persistence of a moderate amount of globulin. Another died of brain gumma (proved at necropsy) four months after admission, though the admission examination had shown no neurologic abnormalities other than sluggishly reacting pupils. In one patient of this group, the spinal fluid was observed to become spontaneously negative in the absence of treatment, though in two others it was unchanged and in four it became worse in spite of considerable amounts of treatment. The average duration of treatment given to the patients of this group now classified as well was twenty-seven months, while for the patients whose results were certainly or questionably poor it was nineteen months. The average period of observation was six years.

The larger number of patients included in groups 2 and 3 make the results more convincing. Of seventy-three patients with group 2 fluids, 68 per cent are now regarded as well, 6 per cent have developed clinical neurosyphilis, and in 28 per cent the present status is questionable. Two patients in this group, both found to have group 2 fluids shortly after treatment for early syphilis had been started, have developed dementia paralytica, in one case six and in the other eight years after infection. Another has developed early tabes dorsalis, and two diffuse meningovascular neurosyphilis. On the other hand, a surprisingly large number of patients are well after treatment averaging twenty-two months in duration, and over an average period of observation of six years. Two patients of this group have even acquired a probable second infection with syphilis, which is strong presumptive evidence of radical cure of the first infection in spite of the neuraxis involvement. We have observed no instances of spontaneous regression of the spinal fluid to negative in this group; on the contrary, we have repeatedly been impressed with the fact that when puncture is again done in such patients after a lapse following inadequate treatment, the fluid changes are invariably either unimproved or more usually worse.

That the paretic formula in the spinal fluid, even in early syphilis, is of extremely grave prognostic significance is shown by the outcome in the thirty-six cases falling into group 3. Here, even in the relatively brief average period of observation of eight years, only 27 per cent of the patients can be regarded as clinically and serologically well. Thirty-three per cent (twelve patients) have developed clinical neurosyphilis, and in 40 per cent the present status is questionable. No less than seven patients in this small group have already developed dementia paralytica, and three tabes. The gravity of the situation is further exemplified by the fact that the average duration of treatment necessary to accomplish a satisfactory clinical and laboratory result in this group was nearly twice as long—forty months—as in patients with groups 1 or 2 fluids; and in many instances, tryparsamide or fever therapy or both, rarely resorted to in patients of the other two groups, were necessary.

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[4] These twenty-four patients include six in whom final neurologic examinations are available but repeat spinal fluid examinations are lacking; and eighteen in whom the reverse is true. In all other patients, statements as to the ultimate outcome are based on reexamination from both clinical and laboratory standpoints (blood Wassermann and spinal fluid tests) at the end of the period of observation.

Table 4.—*Types of Clinical Neurosyphilis Observed as Sequelae of Asymptomatic Neurosyphilis*

Admission Diagnosis and Group of Asymptomatic Neurosyphilis		Developed Clinical Neurosyphilis, Type						
		Total Cases	Dementia Paralytica	Tabes Dorsalis	Diffuse Meningovascular	Vascular	Epilepsy	Died, Neurosyphilis
Early	1	..	..	..	..	..	..	..
	2	3	2	..	1	..	..	..
	3	4	2	1	1	..	..	1
Late	1	2	..	..	..	1	1	1
	2	2	..	1	1	..	..	..
	3	8	5	2	..	1	..	3

In table 4 may be found a summary of the clinical types of neurosyphilis observed to develop in patients with early and late syphilis, further subdivided as to spinal fluid groups. It is a curious fact that parenchymatous neurosyphilis (dementia paralytica and tabes) was by far the most frequent type of neuraxis involvement observed (thirteen of nineteen cases) though as one sees the manifestations of neurosyphilis on the admission of untreated or badly treated patients, the meningovascular type predominates in the proportion of 2 to 1. This can hardly be due to any other cause than that the large majority of patients in this series were well and intensively treated, comparatively speaking, after the discovery of the spinal fluid changes; and that such intensive treatment is effective in preventing the development of meningovascular, but not of parenchymatous, neurosyphilis. This table further brings out the fact that, while one cannot assure a patient whose spinal fluid is of the group 2 type that he will not develop tabes or dementia paralytica, his chance of doing so is markedly less than when his original spinal fluid changes are maximal in degree (group 3). The opinions we have previously expressed,[2] that the foundations of dementia paralytica and tabes are laid in the early days of the infection and that patients with group 3 (paretic formula) fluids are candidates for parenchymatous neurosyphilis, seem amply confirmed by these figures. Of the twelve patients with group 3 fluids who subsequently developed neurosyphilis, the type of involvement was parenchymatous in no less than ten, of whom three were admitted with early syphilis. The point is worth mentioning that, to be of real prognostic value, a spinal fluid examination must include a quantitatively titered Wassermann reaction and a colloidal test, since the presence or absence of the paretic formula cannot be detected without them. The omission of these two tests invalidates much published work, especially from abroad.

We feel that the figures we have given as to the outcome of asymptomatic neurosyphilis, while convincing enough, nevertheless present the matter in its most favorable light because of the relatively short period of observation possible in most instances. Keeping in mind the facts that routine spinal fluid examinations have been in use in our clinic for a little less than ten years, and that the average interval between infection and the development of parenchymatous neurosyphilis, for example, is from twelve to fifteen years, it is obvious that further observation will be necessary to settle the fate of most of our patients now classed as questionable. This is amply illustrated by table 5, in which is shown the basis of the "questionable" classification. Of thirty-eight cases so classified, the spinal fluid at the last examination, usually after considerable amount of treatment, was still positive (usually unimproved or worse) in thirty-one. Nine of these thirty-one have developed since admission minor neurologic changes suggestive, but not diagnostic, of neurosyphilis; in twelve, no such objective changes have appeared; and in ten, recent neurologic examinations have not been done. Seven patients are classified as "status questionable" on the basis of the appearance of minor objective neurologic signs, though in six of these the spinal fluid is now normal (in one case spinal fluid data are lacking). It seems too much to hope that many of the thirty-one patients whose fluids are still positive will escape clinical neurosyphilis.

Eleven patients of this series are dead. Four died of dementia paralytica, one of cerebral gumma. One patient with a group 2 fluid died at the age of 38 of a cerebral vascular accident, but since he had a severe hypertension, and since a necropsy was not obtained, he is classified with the questionable group. Two died from cardiovascular syphilis, one of whom had definite signs of tabes before death. Three have died of causes unrelated to syphilis, of whom one had developed internal ear deafness (cochlear nerve paralysis) as clinical evidence of neurosyphilis before death.

Since we have laid so much stress on the grave prognostic import of asymptomatic neurosyphilis, the question will inevitably be raised as to the prognostic significance of negative spinal fluid observations in early and late syphilis. In general, it may be stated that if the spinal fluid, examined at an appropriate time in a patient undergoing treatment for early syphilis, is negative, and if the patient completes modern treatment requirements with no clinical or blood Wassermann reaction relapses, reexaminations of the fluid at subsequent dates will be negative; and, excepting the possibility of a more or less purely vascular neurosyphilis, the development of clinical neurosyphilis, especially of the parenchymatous type, is extremely unlikely. In late syphilis, even the quali-

Table 5.—*Basis of the Diagnosis of "Questionable Neurosyphilis"*

		Developed Minor Neurologic Changes Suggestive, but Not Diagnostic, of Neurosyphilis			Cerebrospinal Fluid Still Positive, Usually Unimproved or Worse After Treatment or Observation	
Original Spinal Fluid Falls in Group	Total Cases	Cerebrospinal Fluid Became Negative	Cerebrospinal Fluid Still Positive, Usually Unimproved or Worse	Cerebrospinal Fluid No Data	No Clinical Evidence of Neurosyphilis	Clinical Data Lacking
1	6	1	..	..	3	2
2	18	4	6	..	4	4
3	14	1	3	1	5	4

fications as to treatment and the time of spinal puncture are unnecessary; a negative fluid will remain negative and, with rare exceptions, the patient will not develop neurosyphilis. Data supporting these statements will be provided in a separate communication.

SUMMARY AND CONCLUSIONS

1. Data regarding the outcome of 123 patients with asymptomatic neurosyphilis (including 55 whose admission diagnosis was early and 68 late syphilis) observed over an average period of seven years are presented. Conclusions are based on repeated clinical and spinal fluid reexaminations.

2. The patients are classified in three groups (1, 2 and 3) on the basis of the intensity of the spinal fluid changes.

3. Spontaneous regression to normal of positive spinal fluid observations of any degree of intensity is a rare phenomenon.

4. Of 14 patients with group 1 spinal fluids, 6 are clinically and serologically well, 2 have developed clinical neurosyphilis and in 6 the present status is questionable.

5. Of 73 patients with group 2 fluids, 50 are clinically and serologically well, 5 have developed clinical neurosyphilis (of whom 2 developed dementia paralytica and 1 tabes), and in 18 the present status is questionable.

6. Of 36 patients with maximal (group 3) fluid changes, only 10 are well. Twelve have developed clinical neurosyphilis (of whom 7 developed dementia paralytica and three tabes), and in 14 the present status is questionable.

7. The presence of a group 3 spinal fluid, early or late in the course of syphilitic infection, is strong presumptive evidence of liability to the development of parenchymatous neurosyphilis.

8. Since the average observation period is short, it seems certain that the figures given for the incidence of clinical neurosyphilis are minimal and that from the 38 patients now classified as "status questionable" further examples will develop.

9. Eleven patients of the series are dead, of whom 5 died of neurosyphilis.

10. The presence of a positive spinal fluid in patients with early or late syphilis who show no objective neurologic abnormalities is of grave prognostic import. Generally speaking, the ultimate danger to the patient is roughly proportional to the intensity of the spinal fluid changes.

11. On the other hand, a negative spinal fluid in early or late syphilis is, subject to certain qualifications, a practical guarantee of safety for the future so far as the development of neurosyphilis is concerned.

12. These facts being true, routine spinal puncture is an indispensable part of the management of every patient with syphilis.

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ABSTRACT OF DISCUSSION

Dr. Udo J. Wile, Ann Arbor, Mich.: The figures just presented are an adequate justification for the use of lumbar puncture in the early weeks of this infection, when patients are seen for the first time. The results we have obtained in our cases, extending over eighteen years, are practically identical with those that have just been presented. In 1914, Dr. Stokes and I suggested that the fate of every patient with syphilis, as affecting his central nervous system, was decided within the first few weeks of his infection. We are certain that that statement must be taken with some qualification. It should be remembered that the criteria of "normal" in the spinal fluid are entirely arbitrary. Between the arbitrary "normal" and the abnormal, which is a small gap, things may occur which cannot be detected with the present criteria of diagnosis. I differ slightly in regard to the criteria suggested here. I should like a definite distinction between invasion and involvement. Invasion of the cerebrospinal axis must be accepted as occurring in all cases. Perhaps it is best to accept the probability that in all cases of syphilis a cerebrospinal enanthem is being dealt with. Involvement of the nervous system means an entirely different thing. If involvement occurs in from 5 to 10 per cent late and in from 20 to 30 per cent early, and invasion occurs in 100 per cent, a transitory phenomenon in clinical observations must be present, which does not come to the foreground. The second point is including in this group of asymptomatic cases those cases in which headache or other abnormal conditions, including inequality of the pupils, are present. It is precisely in the group in which clinical symptoms are more than suggestive that experience tells me that cerebrospinal disease does occur. I should like to hear more from the authors as to why they include in this group cases that they regard as asymptomatic which would ordinarily be regarded as involvement and not as invasion. The last point of interest is the relation of cases that have a serious type of involvement early to the type that shows development of cerebrospinal disease late. Generally speaking, I think those cases that present severe parenchymatous changes early are those that are headed for severe disease later on.

Dr. Paul A. O'Leary, Rochester, Minn.: I believe the majority of syphilotherapists are familiar with the fact that most of the patients with asymptomatic neurosyphilis when treated intensively obtain satisfactory serologic reversals. I make mention of this because I failed to gather from the report of Drs. Moore and Hopkins the percentage of good therapeutic results noted in their study. In my experience approximately 90 per cent of these asymptomatic cases respond favorably to treatment. One of the chief difficulties in the care of these patients is to determine when the patient with asymptomatic syphilis should no longer be classified as asymptomatic. In other words, when shall the diagnosis, for example, change to paresis sine paresi? In addition to the persistently positive spinal fluid or the frequent relapses from negative to positive, the colloidal benzoin test is a valuable prognostic index. When it has been possible to repeat the test frequently, I have found it not only more stable but also more reliable in the recognition of the paretic curve than the colloidal gold solution. In the 10 per cent who fail to show serologic response to treatment and are in the process of developing asymptomatic dementia paralytica, malaria therapy remains the outstanding therapeutic agent in my experience. The observations reported two years ago from my clinic have been substantiated by subsequent study of a larger group of similar cases. In fact, it is my belief that the ideal indication for malaria treatment is found in the patient with asymptomatic neurosyphilis who has had intensive courses of intravenous and intramuscular therapy but in whom the spinal fluid remains positive and the colloidal benzoin curve continues to be of the paretic type.

Dr. Joseph Earle Moore, Baltimore: Dr. Wile has put his finger on one crux of the situation with reference to the classification of this material as asymptomatic neurosyphilis, and comments on including in this group patients who actually had syphilis and actually had neurologic signs. That was done for two reasons: first, because the symptoms of which these patients complained were symptoms of which normal individuals may complain. Headache is a common symptom; rheumatic pain; weakness, nervous irritability, insomnia, and so on are things from which all of us suffer and from which patients with negative spinal fluid as well as positive suffer particularly. We have already published a small number of figures bearing on this point and will in the future expansion of this work produce more, but we feel that it is quite impossible to make diagnoses of central nervous system syphilis on such complaints as this. The question of minor neurologic signs, including sluggish reflexes, unequal pupils and so on, are perhaps more important; but these phenomena also occur in normal individuals who do not have syphilis, and also frequently in syphilitic patients who do not have positive spinal fluid, so the same situation may be said to exist with reference to physical signs as with syphilis. We find ourselves unable, even with the assistance of our neurologic department, to make definite diagnosis of syphilis in a patient who comes in complaining only of headache, sleeplessness, weakness, or inability to concentrate, and such patients are excluded from a definite clinical diagnosis of central nervous system syphilis. Dr. Wile's point regarding the ultimate outcome is well taken. The point was mentioned that because a patient does not show the paretic formula early in the course of the infection he will not develop dementia paralytica; but if this is shown I think the chances of his developing dementia paralytica are much greater than if he does not show it and, conversely, he is much less likely to develop the disease if he does not show it. Dr. O'Leary asked about the percentage. In summary I may say that in group 1, of fourteen patients six are serologically and clinically well; in group 2, good results were obtained in approximately 50 per cent of the cases, while in group 3 only about 10 per cent are symptomatically well. The rest of the fluids are definitely syphilitic, emphasizing again the great importance of the paretic formula early or late in the course of the infection.

THE SEQUELAE OF BILIARY TRACT INFECTION *

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The biliary tract, composed of branching channels of various sizes, is greatly dependent for its normal well being on the free onward passage of its contents. The consequences of obstructed bile flow have to do largely with impairment of liver function. In a clinical sense, bile obstruction and infection are practically always coexistent and in nearly every case infection is the primary cause. Cholecystitis causes interference with the normal emptying of the gallbladder, and the resultant bile stasis is favorable for the formation of stones. With few exceptions infection is the primary lesion, to which is added later the complication of gallstones. Pathologic studies have shown that in the early stages the infection begins in the submucosa, as manifested by congestion, edema and round-cell infiltration. This process extends outward to involve the muscularis and serosa and inward to affect the mucous membrane. The crypts and glandular pockets become distended with bile and mucus and extend their depths farther into the wall of the gallbladder until in some cases they actually lie just beneath the peritoneal covering. Stones may form in these pockets and lead to perforation of the gallbladder. The inflammatory condition usually goes on to spontaneous resolution, but in so doing it leaves a deposit of fibrous tissue which causes the wall of the gallbladder to become thickened and less flexible. The quiescent infection in the wall of the gallbladder is prone to undergo many exacerbations, each one leaving in its wake more structural deformity and functional impairment. Eventually the gallbladder becomes a harbor of infection and a site of fomenting potential mischief for its neighboring structures. The sequelae of biliary tract infection now assume major importance through neglect to deal promptly and properly with the original lesion.

The consequences to the gallbladder itself are important. It becomes a useless organ and a factor in the formation of adhesions to neighboring structures. Such adhesions, particularly to the stomach and duodenum, are a source of annoyance to the patient and of confusion to the diagnostician. In many instances the roentgenologist is unable to distinguish between the deformity of the duodenum caused by ulcer and that by adhesions. The clinical picture may be suggestive of either lesion. In fact, even when the abdomen is opened the surgeon may experience considerable difficulty in determining whether the original lesion is in the duodenum or in the gallbladder. Pericholecystic adhesions may have their attachments not only to the duodenum and pylorus but also to the hepatic flexure of the colon and the great omentum, and not infrequently the dilated pelvis of the gallbladder is adherent to the right free border of the gastrohepatic omentum along the line of the common duct. Unless the adherent pelvis is carefully dealt with and carefully separated and the structures are identified, either the common or the hepatic duct or both ducts may be injured, the possible serious consequences of which are well known.

Perforation of the gallbladder may occur into the free peritoneal cavity through the action of ulceration and the pressure of stones. This usually fatal catastrophe fortunately is rare. More commonly, adhesions will attach the gallbladder to one of the neighboring hollow viscera, such as the stomach, duodenum or colon. When perforation occurs, the result is the formation of an internal biliary fistula. Judd and Burden, who have reported 153 cases of internal biliary fistula, conclude that: "Internal biliary fistula is a late complication of cholelithiasis. It rarely occurs in the absence of calculi. The organs involved and the order of frequency are duodenum, colon and stomach. The fistula is nearly always by direct communication; only rarely is there an intervening abscess cavity. The symptoms are characterized by long duration and severity. Diagnosis is usually made only at the operating table. Formation of a spontaneous biliary fistula is in no sense a cure of cholelithiasis, but is an addition and dangerous complication. The treatment of the condition when found is closure of the fistula, cholecystectomy when possible, and careful exploration of the ducts for stones. Emergency drainage of the gallbladder and ducts may be the only logical procedure in some cases. Separate lesions in the stomach or duodenum may be complicating factors. The unnecessarily high operative mortality is a direct result of delay of the patient in coming to operation."

Carcinoma of the gallbladder is not a very uncommon sequel. It may be designated as a late complication of cholecystitis in which gallstones have been the inciting factors. The rôle of irritation in the pathogenesis of cancer is self-evident. The constant local irritation of stones in the gallbladder leads to proliferation of cells which may in time overstep the mark and spread beyond the bounds of usefulness and repair. When this stage is reached, cancer is established. The symptoms of malignancy of the gallbladder do not differ materially from those of cholelithiasis. The diagnosis is rarely made before operation, and at operation the condition found is usually so far advanced that it is beyond the hope of remedial measures. Carcinoma of the gallbladder does not always develop in ancient gallstone disease; but when it does, the reason, I believe, is to be found in individual susceptibility. In other words, the development of a carcinoma under such circumstances depends on two factors: individual susceptibility and the irritation that provokes proliferation.

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When the function of the gallbladder is lost or impaired through disease or by removal, there follows a dilatation of the extrahepatic bile ducts which apparently is caused by intermittent contraction of the sphincter of Oddi. After a time the sphincter becomes incompetent and bile flows continuously into the duodenum but the ducts remain permanently dilated. The mechanism of the sphincter of Oddi, its normal and abnormal function, afford a splendid field for investigation into the etiology of biliary tract disease. I believe that therein will be found the explanation of many postoperative phenomena and symptoms which at present are not understood. In operations on the biliary tract it is my routine practice to make a thorough examination of the common duct. When there has been a history of jaundice and the common duct is dilated and thickened, I always make an exploration of its interior by the use of probes and also with the finger if possible. I am not satisfied that this exploration has been complete until an instrument can be freely passed into the duodenum. In many cases the value of this procedure has been demonstrated by the finding of a contracture or an actual stricture at the terminal portion of the common duct, through which considerable force was required to pass the instrument into the duodenum. Contracture of the termination of the common duct may be due to inflammatory stricture, to pressure from inflammation in the head of the pancreas, and to spasm of the sphincter of Oddi. These conditions cannot always be differentiated and their frequency makes it imperative for the surgeon to be certain of the free patency of the duct. A number of German surgeons have advocated and carried out dilation of the distal end of the common duct by the use of graduated probes in every case in which exploration of the duct has been advisable. I believe that if more attention were given to this source of disturbance many of the postoperative sequelae of biliary tract disease would be eliminated.

The effects of cholecystitis on the liver have occupied my attention for some time. While I am not yet entirely satisfied as to which is the primary disease, I am inclined to believe that in the majority of cases the original lesion is in the gallbladder. There are probably some cases that begin as a diffuse infection of the biliary tract which later becomes localized in the gallbladder and the adjacent portion of the liver. But my surgical experience has convinced me of the pernicious effect which chronic cholecystitis has on the structure and function of the liver and that the best results in these cases are to be obtained by the removal of the gallbladder before the hepatic damage has become irreparable.

A potent reason for assigning to the gallbladder the primary rôle in the production of hepatitis lies in the fact that in the mild cases of cholecystitis the involvement of the liver is limited to a small area immediately adjacent to the gallbladder. In cases of longer duration the hepatitis is more diffuse and deep seated. It is especially noticeable in the anterior border of the liver, which is sometimes thickened to as much as from 8 to 10 cm. The entire liver is often enlarged, friable and has the appearance of intense congestion. It seems logical to believe that prolonged diffuse infection of the liver as it is seen in hepatitis will eventually lead to biliary cirrhosis. The latter condition favors congestion and enlargement of the spleen so that to obtain a cure in these long standing cases it is sometimes necessary to remove the spleen and the gallbladder, and to secure external biliary drainage by the use of a T-tube inserted in the common duct.

Infection may reach the liver through the blood stream, through lymphatic spread from an infected gallbladder and by way of conduction along the bile duct, as an ascending cholangeitis.

Cholecystitis and cholangeitis frequently are associated lesions. Studies of this condition, notably the study of Burden, show the presence of inflammatory changes in the walls of the common duct in every case of chronic cholecystitis. These inflammatory changes seem to follow along branching glandular channels which have a widespread distribution throughout the entire duct system. They afford a ready means of dissemination and infection. The inflammatory process is characterized by round-cell infiltration, of cystic dilatation of the mucous glands, deposits of fibrous tissue and thickening of the walls of the duct. It may extend upward and involve the smaller ducts of the liver and become a cholangeitis. This deep-seated interstitial infection of the walls of the duct not only encourages chronicity but makes difficult any successful therapeutic attack. The only rational therapeutic procedure is removal of the focus of infection, which is usually the gallbladder, and the maintenance of free drainage of bile by the introduction of a T-tube into the common duct. Choledochitis is a cause of stricture, a lesion that occurs most frequently at the junction of the cystic and common bile ducts in a region where choledochitis is most pronounced as a secondary lesion of cholecystitis. In these cases of inflammatory narrowing of the duct, removal of the gallbladder may be followed in several months by the development of obstructive jaundice caused by formation of a stricture. Needless to say, secondary operations for this condition are formidable, attended by great immediate danger and often by unsatisfactory postoperative results and a long convalescence.

Stricture of the common bile duct or the hepatic duct may be primary, but most often it follows some surgical procedure on the biliary tract, although the operation is not necessarily the cause of the stricture since the healing of the inflammatory lesion along the duct may result in the formation of scar tissue with serious interference with the lumen of the common duct. In a certain percentage of cases the stricture has been caused by operative injury to the duct, particularly in the region of the junction of the cystic and common ducts. It is of the utmost importance for the surgeon to be absolutely certain of his identification of the structures during operation because it is the only method that offers assurance against operative injury. A word of caution should be mentioned regarding efforts to ligate the cystic duct flush with the common duct during cholecystectomy. To do so is unwise and unnecessary. Although leaving a small stump of the cystic duct may not be objectionable, efforts to remove it completely may seriously compromise the lumen of the common duct. Another possible cause of stricture is the introduction of gauze packing in too close proximity to the common duct. This may result in the excessive formation of scar tissue and stenosis of the duct. The symptoms of stricture of the common duct are jaundice and pain; the jaundice is intermittent in character and is usually preceded by an attack of colic, so that the symptoms closely resemble those of stone in the common duct. Operative injury to the duct usually results in a biliary fistula, spontaneous closure of which is followed by the development of constant, complete jaundice.

The sequence of events from cholecystitis to pancreatic lymphangitis and chronic pancreatitis has lost none of its significance, to me at least, during the course of my experience since my interest was first aroused in this pathologic process. I see it often enough to confirm my stand, not only at operation but in the follow-up clinic, where failure to obtain complete relief from upper abdominal symptoms is plainly due to a chronic pancreatitis. Regional lymph node involvement in cholecystitis is very much like cervical adenitis caused by tonsillitis or by inguinal adenitis in an inflammation of the lower extremity. As the original inflammation subsides by treatment or by removal of the focus of infection, the adenitis usually subsides. Unfortunately, the pancreas, when seriously affected, undergoes fibrotic changes which remain as a potent cause of trouble. Since there is no direct way of attacking the pancreas, the treatment of pancreatitis is essentially prophylactic; that is, treatment of the biliary tract infection before the pancreas has become involved by destructive inflammation. It is my belief that a certain percentage of cases of diabetes are caused by pancreatic changes which result from cholecystitis. Certainly, the frequent association of disease of the biliary tract and potential diabetes as shown by the high sugar content of the blood is not a mere coincidence.

While most practitioners are aware of some of these local effects of gallstone disease, I have thought it worth while once more to call attention to the familiar as well as to the less familiar sequelae of biliary tract infection. Constant dripping wears away the stone (though not the gallstone) and constant reiteration may wear away the delusion that too much attention is being paid to disease of the gallbladder and its local and remote effects. The latter need as much emphasis as the former, for the rôle of the gallbladder as a focus of infection is not sufficiently in the consciousness of the average diagnostician. The occurrence and character of the manifestations secondary to a focal infection are dependent on the number, virulence and specific action of the bacteria. The degree of tension in the focus is due to the mechanical obstruction to normal drainage and the vascularity of the focus. These, I believe, are the generally accepted facts with regard to the relationship of focal infection to local and systemic disease. Since in its structure the gallbladder admirably complies with these requirements for the rôle of a focus of infection, it is rather surprising that its part in systemic disease was not earlier suspected and has not been more generally conceded. The infective agent often is the streptococcus, which, as is well known, has a special affinity for certain tissues, such as the fascial planes, the joints, the heart muscles and occasionally the kidneys. The frequent presence of streptococci in the walls of the gallbladder and in gallstones is demonstrable evidence that certain systemic symptoms can be directly referable to a cholecystitis or a cholelithiasis. It is therefore not unusual nor surprising to find that some of these patients complain of attacks of rheumatism and develop painful nodules in muscular planes, while others show myocardial symptoms, dyspnea and palpitation on slight exertion, the fear of which leads to a certain inertia which in turn creates a tendency to the fair, fat and forty type of individual and adds the danger of fatty cardiac degeneration to the myocarditis. Occasionally rheumatoid arthritis, and sometimes disease of the kidneys, may be traced directly to an infected gallbladder. Again, I say, these are not theories but facts borne out by my own experience and the experience of others, that with the removal of the gallbladder the systemic disease is cured or at least very much relieved provided, of course, that the damage already done is not irreparable. Therefore I say, "Ever bear in mind the insidious streptococcal infection lurking in the wall of the gallbladder."

Myocardial disease has long been recognized as a lesion which is frequently associated with cholecystitis. Many years ago, Kerr emphasized the causal relationship between these two lesions. My experience certainly confirms this observation. In fact, myocardial disease is a prominent cause of death after operations on the biliary tract. In many cases the infection in the gallbladder is no doubt responsible for the myocarditis. In other cases the development of the two lesions is favored by the constitutional make-up of the individual. Nevertheless, it must be recognized that myocarditis may be a sequel of cholecystitis and that the possibility of this complication merits serious consideration on the part of those who counsel delay in the surgical treatment of biliary tract disease.

From their medical colleagues, physicians hear much about adhesions following operation on the biliary tract. I am admittedly and without reservation an advocate of early surgical treatment of biliary disease. A long experience has convinced me of the evil consequences of delay. The results of surgery are by no means perfect and especially in the region of the right upper quadrant of the abdomen, which contains so many important structures. Surgical intervention when made at a late hour cannot be expected completely to restore the condition to normal. Adhesions more or less follow every abdominal operation, but rarely do I find that they are the actual cause of symptoms. In cases of severe disease in the right upper quadrant of the abdomen, as in suppurative cholecystitis, nature forms dense adhesions which often make it extremely difficult for the surgeon accurately to identify the structures. Such adhesions cannot completely be corrected by any type of operation; in fact, it is the part of surgical wisdom to disturb them as little as possible to accomplish the desired operative procedure. It seems to me an unfair criticism of surgery of the biliary tract to ascribe postoperative symptoms directly to the operative procedure with the implication that had the operation not been done the patient would not have the symptoms. Surgical errors do occur and sometimes they make the last condition worse than the first; but, as a surgeon, I am happy to state that such occurrences, fortunately, are rare and relatively infrequent.

The symptoms of chronic cholecystitis, with the exception of colic, are largely those of a reflex gastric disturbance commonly spoken of as gallstone dyspepsia. I believe that most of these gastric symptoms are caused by pylorospasm and that many of the postoperative complaints are also due to pylorospasm. Clinical and experimental studies have well established the irritability and dysfunction of the pyloric sphincter in cases of abdominal irritation. Pylorospasm, which has long persisted as a reflex phenomenon of chronic cholecystitis, leads to hypertrophy of the pyloric sphincter, which I am able frequently to demonstrate at operation. For the purpose of correcting this condition and avoiding postoperative symptoms it has recently been my practice, in operations on the biliary tract in cases showing pronounced gastric symptoms, to remove the anterior half of the pyloric sphincter. This added procedure is easily carried out in a short time and without an opening into the lumen of the intestine. The technic has been described in previous publications concerning the treatment of peptic ulcer. The procedure eliminates the pyloric sphincter as a factor in postoperative complaints and has been attended by satisfactory results.

In this paper I have included only the more important sequelae of biliary tract infection in which the gallbladder has been considered as the center of attention. Some of the sequelae of cholecystitis are loss of the function of the gallbladder, dilatation of the common duct, insufficiency of the sphincter of Oddi, gallstones, choledochitis, cholangeitis, hepatitis, biliary cirrhosis, pancreatic lymphangitis, chronic pancreatitis, carcinoma of the gallbladder, myocarditis, focal infection and pylorospasm. Consideration of this array of diabolic forces should be sufficient reason to make one appreciate the serious potentialities of infection of the gallbladder. To me there seems no valid reason to withhold the help that surgery can offer. Improvement in surgical end-results will follow earlier intervention, that is, before the sequelae of biliary tract infection have become established.

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ABSTRACT OF DISCUSSION

Dr. William D. Haggard, Nashville, Tenn.: To Dr. Deaver more than to any one else belongs the credit for teaching that pancreatitis is largely of lymphatic extension from the gallbladder. Opie described a postmortem in which the gallstone was lodged in the ampulla of Vater and mechanically retrojected the bile into the duct of Wirsung. I have never encountered a facsimile of it. Robson called attention to a fact that with a pancreas so hard and enlarged as to be mistaken for carcinoma, when the gallbladder was removed for associated gallstones, although the surgeon thought the condition was malignant and gave a grave prognosis, he found that the tumor disappeared and the patient got completely well. That was the experience that ushered in the clinical recognition of chronic pancreatitis. Not all cases of chronic pancreatitis are cured by cholecystectomy. In such cases, Dr. Deaver has shown that prolonged drainage of the common duct, even as a secondary operation, if necessary with the T-tube, is curative. The sequelae in reference to other organs are extremely interesting. Willius showed that 54 per cent of cases of cardiovascular disease associated with gallstones were greatly benefited by the removal of the gallstones. A considerable number of anginoid cases were benefited, and in those who were not relieved, the attacks were modified, were much less in severity, and greatly ameliorated. One does not have the same excellent result with myocardial disease from removal of the gallbladder as a focus as from an arthritis and "lumbagos" in a child, for instance, with enlarged tonsils. The arthritides with associated gallbladder disease are likewise not so definitely and uniformly benefited. The streptococcus is a notoriously chronic type of micro-organism, and when the arthritides have that origin, the fascial planes are a long time getting over the infection. Moreover, whatever focus started the streptococcus, the gallbladder and the heart or the joint were probably hit at the same time. The cases of carcinoma of the gallbladder from gallstones formerly numbered about 5 per cent. They are always associated with gallstones. At the present time, as the result of the universal and successful practice of removing the gallbladder early, and nearly half of them without gallstones but with a chronic, infectious, intramural cholecystitis, the incidence of carcinoma has been reduced to such an extent that it is probably not over 1 per cent. The question, therefore, may well be asked: What does it profit a person to carry around gallstones that have a potential likelihood of production of cancer of 1 per cent when removal of the gallbladder probably would carry much greater mortality? In reference to all these sequelae, I think this may be said: It has been my practice for a number of years in selected cases of primary acute cholecystitis, diagnosed early, to treat then and there by operation in the beginning.

Dr. Clark D. Brooks, Detroit: I recall about twenty years ago visiting Dr. Deaver's clinic in Philadelphia. He had a difficult gallbladder case presenting stones in the hepatic and common ducts. After a few minutes he succeeded in getting the gallstone from the common duct and I remember his remark as he held it up: "Oh, if I could only have had you nineteen years ago!" Of course, the patient had complications, simply because of this long-standing infection. Regarding the sequelae of biliary disease, I believe that operation should be performed as early as possible. However, one must be sure of the diagnosis. In addition to the clinical symptoms, one should use the Graham test as a diagnostic acid, when the opportunity affords itself. It is not felt in our clinic that the examination is complete unless we have used the Graham test. We use the oral method, and 97 per cent of the cases diagnosed by this procedure have been correct. There is not time to say much about the cases of calculous and noncalculous gallbladder. They cause different symptoms. In cholecystitis of the noncalculous type, when the symptoms are not relieved by medical treatment, after a few months, surgery is indicated. The longer the delay in the medical treatment, the greater the complications and the higher the mortality. It is well known that many heart attacks are relieved by surgical intervention in an infected gallbladder. Not infrequently the patient with common or cystic duct obstruction and a distended gallbladder will suffer attacks of cardiac irregularity, which are entirely relieved by surgical drainage. The obese patient and the aged patient are not fit for any extended operation, and when possible several days of careful preoperative treatment is all important. For over two years I have used spinal anesthesia. I think it is the most satisfactory anesthetic I have ever used in operations on the biliary tract. By doing choledochotomy one can remove the gallbladder and drain the ducts. I believe that if more of the so-called duodenal drainage tubes were cut up in sections 8 inches long and put in the cystic or common ducts and left there several weeks, instead of used to tickle the esophagus, many patients would be alive today.

Dr. F. F. Lawrence, Columbus, Ohio: Dr. Deaver's exposition reminds me that there are four questions every surgeon must answer: What, why, how and when? What and why will ever remain for scientific and abstract determination. The how depends on the surgeon's training and personal preference. Why does biliary tract infection occur, to begin with? Why do these sequelae of which Dr. Deaver speaks occur? In order to get a clear conception of the picture, the anatomy of the lymphatics must be reviewed. According to Sappey and Poirier, the lymphatics of the pelvis and abdomen come up along with the branches of the portal vein to their junction, and a short distance after they join to form the portal vein become embedded in the wall of the portal vein, enter the liver and break up there, forming intralobular, sublobular and interlobular branches, the same as the vein does. Then, in every case of biliary tract infection one can get a history of typhoid infection, pelvic infection or appendicitis. If this infection comes from below, and if the bile tract, lymphangitis and lymph nodes which remain as sequelae are really antecedent, they exist because the infection has been taken up from the chronic appendicitis, the pelvic infection, the typhoid ulcer or elsewhere, and carried up. But the infection was in the lymph vessels and lymph glands first, and they became lymph nodes. Why, then, does the septic cirrhosis occur? Because of delay or improper drainage. If the infection should be primarily in the substance of the liver in the small secretory ducts of the liver and in the bile tract second, if that infection was not drained out this septic cirrhosis of the liver might be expected to develop. Why does the splenitis occur which has sometimes been thought Banti's disease and a splenectomy performed therefor? Because of the portal obstruction damming back the blood on the spleen. Nobody has ever seen a pathologic examination of the spleen under any such condition, or after death, in which anything but venous engorgement was shown.

Dr. E. Payne Palmer, Phoenix, Ariz.: Chronic cholecystitis is a surgical disease, amenable only to surgical treatment and should be so treated as soon as the patient can be prepared for treatment. One should not wait until next week or next month or next year. I do not think that the surgeon needs so much educating in cholecystitis as the internist, the gastroenterologist and the general practitioner, and surgeons advise the patient to wait until next week or next month, or maybe next year, to see what the result will be. I have had to treat two cases of intestinal obstruction as the result of a spontaneous cholecystoduodenostomy having occurred and large gallstones passing down into the intestinal tract producing the obstruction. I think that the importance of postoperative care should be stressed. If the patients are sent away with the idea that they are cured, there are going to be failures and the results will not be nearly so satisfactory as if one turns them back to a good internist or to their home practitioner with the idea that the treatment must be carried on for a long period.

DR. WILLIAM J. CASSIDY, Detroit: The great question in the procession across the surgical arena is one which has taken place in the last twenty years, which has made surgery so safe that the abdomen has been opened in a multiplicity of instances with impunity and many diagnoses have been based on symptomatology which does not bear the searchlight of accuracy at the time it is opened up. Many innocent gallbladders, or gallbladders with a few little cobwebs around them, are raised to the pinnacle of a terrific disease. This is the situation today. I have no quarrel with the surgeon who wants to remove or drain a gallbladder when he can show that it is infected, but I have a great deal of antipathy to the surgeon who opens every abdomen because the patient has a few little swallows of gas, whose diet has never been regulated, and nothing has been done previous to that time. I don't care how expert the surgeon is, if he does not regulate the patient after operation and regulate his home environment, he has done him absolutely no good by taking his gallbladder out. Dr. Lawrence hit the nail on the head. He said that the infection in the lymphatic stream went up into the liver. What is done surgically? The gallbladder is taken out and this large mass of ducts all through the liver, the common duct, the cystic duct and the head of the pancreas, which can't be taken out, are left. The surgical field needs revamping. Some preconceived ideas must be changed. The streptococcus cannot be got rid of as long as people are concentrated in big cities and the water is polluted. In spite of chlorination, cesspool water is being drunk all the time. Colon bacilli by the million are in it. It doesn't kill people because they have become acclimated. The fellow who comes in from the rural districts to the city and changes his occupation and his method of living has a lowered resistance and becomes a potential subject for diseases which he was not subject to before—intestinal disturbance and upper right quadrant disease—because the liver takes care of most of his infectious areas, and it has the highest percentage of circulation. In other words, one lives in one's liver.

DR. JOHN B. DEAVER, Philadelphia: Just one word about T-tube drainage. The mucous membranes are very tolerant to rubber. The retention catheter, for example. I had one patient who wore a retention catheter for fourteen years, and he remained perfectly well. If the urethra is tolerant to a rubber tube, why not the common duct? Some of my patients wear the T-tube indefinitely with equal tolerance. One woman wore a tube for four years. Then I had a great deal of trouble getting her to let me take it out, because three operations done previously were followed by recurrences, and she did not want another recurrence of symptoms.

Vision Which Belongs to the Pioneer.—In another quarter, moreover, and in one which is of vital, although of less immediate concern to the layman, the need of specialists is even greater. This is the field of medical research. Our knowledge of disease has advanced so far that further progress will probably be slow, and little is to be expected except as the result of prolonged and concentrated labor. The nuggets lying on the surface have been picked up and the hidden gold will be found only by him who digs deeply and whose training has taught him where to dig. Here is needed not only the specialist, but the specialist with that unusual gift of vision which belongs to the pioneer and which urges him beyond our present confines —Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

DIAGNOSIS AND PROGNOSIS IN PEDIATRICS *

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I am going to take up the subjects of diagnosis and prognosis in pediatrics from the point of view of the practicing physician, not of the hospital. The object of the practicing physician is to arrive at the correct diagnosis with the least possible expenditure of his own time and energy and with the least possible inconvenience and expense to the patient. The hospital has to consider also the training of interns and students, the amassing of statistics and the acquisition of new knowledge, while time and expense are not as important.

DIAGNOSIS

In a large proportion of the children seen in private practice it is evident from the history, provided it is taken carefully, what the trouble is or, at any rate, where to look for it on physical examination. Observation of the parents and child during the taking of the history often shows, incidentally, that the trouble is psychologic rather than physical. The physical examination almost always makes the diagnosis plain, provided, again, it is a complete and thorough one. A physical examination is not complete, of course, or worthy of the name unless the child is stripped and examined from head to foot. After taking the history and making the physical examination the physician should know what the trouble is, that it is one of two or three things, or that he has no idea what it is. The last diagnosis is, moreover, a thoroughly satisfactory one, provided it is arrived at after proper consideration.

If the diagnosis is evident, it is unnecessary to carry out any laboratory procedures unless, for some reason, it seems advisable to corroborate it. If the diagnosis lies between a few diseases, only those laboratory procedures should be done which will aid directly in the diagnosis between these diseases. These must be done. It is as bad practice and as unscientific to carry out others which do not apply directly as it is to omit those that do. If the physician has no idea what the matter is, he should not flounder around trying all sorts of laboratory procedures and taking roentgenograms of the whole body in the hope that he may get hold of something, but should call for help.

Differential Diagnosis.—In making the diagnosis between diseases, it must be remembered that it is only differences in symptoms and physical signs which help. Symptoms and signs which are common to the diseases in question are of no assistance. Cough and dulness on percussion over the lower part of the chest are, for example, of no value in the diagnosis between solidification of the lung and fluid in the pleural cavity, while the position of the heart is of the utmost importance, being normal in one and displaced in the other. The leukocyte count, again, is of no value in the diagnosis between two diseases in both of which it is increased or diminished. It is very valuable, however, when it is increased in one and diminished in the other.

Another thing to be remembered in differential diagnosis is that, on the chances, the child has the most common of the diseases under consideration. The more uncommon the disease is, the more improbable it is that the child has it. He may have it, but it is unlikely. The burden of proof is to show that he has it, not that he has not.

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* Read before the Section on Diseases of Children at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

Another point to be kept in mind is that a child seldom has more than one thing the matter with it at a time. When the symptoms and signs apparently cannot be due to a single disease and its complications, it is almost certain that they are misinterpreted and that they can be fitted together, if better understood. A diagnosis of more than one disease is almost always wrong.

Diagnostic Ability.—I have been interested for many years in the difference in diagnostic ability of physicians and the explanation for it. The diagnostic ability of physicians who are poorly trained or do not take careful histories and make thorough physical examinations is, of course, a negligible quantity and not worthy of consideration. I am speaking of those who are well trained and who are reasonably careful and thorough. A physician's general medical knowledge is, of course, of great importance. The more he knows, the more likely he is to recognize a disease when he sees it. Important as knowledge is, my experience has been that, as a rule, mistakes in diagnosis are usually due not to a lack of knowledge but to lack of care, the lack of care being due to hurry or laziness. Experience is valuable in the same way as general medical knowledge. It is easier to recognize what one has seen before, perhaps many times, than what one meets for the first time. It must not be forgotten, however, that experience not infrequently means simply making the same mistake over and over.

It seems to me that the great difference between physicians is not so much in their knowledge and experience as in their ability, with given data, to separate the chaff from the wheat, to distinguish between important and unimportant symptoms and signs, and to recognize the salient points. This ability is inborn. It can, however, be cultivated to a certain extent. It is the same ability which makes a man successful in other lines—the law, business, banking. If he does not have it, he is led astray by the unimportant, and, once on the wrong track, remains on it and fails to recognize the most obvious signs and signals.

Object in Diagnosis.—The object aimed at in diagnosis is not simply to give a name to the trouble which a child has but to understand just what is wrong with him in order to treat him properly. The diagnosis should include a definite conception not only of the pathologic changes in the individual instance but also of the deviations from the normal physiologic processes caused by them. Treatment, to be rational, must be based on these conceptions and on what is known of the etiology, not on a name.

PROGNOSIS

The most important thing from the point of view of the family is the prognosis. Relatively, it cares little what is the matter with the child. It wants to know whether he will get well or not and, either way, how long he will be sick. Incidentally, whether the child lives or dies, it wants him to be made as comfortable as possible and to have the illness cost as little as possible.

Two things must always be borne in mind in prognosis in early life. First, children are sick many times but die only once. Second, the tendency to recover in early life is greater than in later life. Physicians are naturally and temperamentally either optimists or pessimists as regards prognosis. Whichever they are, they have to be constantly on their guard against this tendency. I am an optimist and always have to allow for it. The patients of certain physicians are always very sick. The question arises as to whether their pessimism is not intentional rather than temperamental. However that may be, it certainly increases the number of visits which they make. A practical point in this connection, which should not be allowed, nevertheless, to influence the prognosis, is that parents are never really angry if a child recovers after a bad prognosis, while they often are if it dies after a good one.

Prognostic Ability.—The prognosis depends on a knowledge of the usual course of the disease, the severity of the disease in the individual instance and the resistance of the individual patient. The ability to appreciate the severity of the disease in the given instance and the resistance of the given patient and, therefore, the ability to make a correct prognosis can be acquired only by experience. Some men learn more than others, however, from experience. As already stated, experience may consist merely in making the same mistake over and over. The same sort of ability is required in prognosis as in diagnosis; namely, the faculty of being able to pick out the important from the unimportant symptoms and signs, and to recognize the salient points. Mistakes in prognosis are most often made by relying too much on single symptoms or laboratory observations and not paying enough attention to the general condition and appearance of the child. For example, a high temperature or low white count in pneumonia in early life does not justify a bad prognosis if the general condition and appearance are good.

Grave Prognosis.—It is always difficult to know what course to take when the diagnosis is in doubt but the probabilities are serious, or when the prognosis appears grave or bad. Should the physician carry the anxiety himself for a time and spare the family, or should he make the family share it with him from the beginning? There may be some question as to the best course to pursue when the patient is an adult, but not when it is a child. The family should always be told. If, in acute disease, it is not told and the child dies, it always blames the physician for not telling. If the disease is a chronic one or the child is abnormal in some way, for example, feebleminded, the family is sure, in the course of time, to consult some one else who will tell the truth. It then almost never gives the physician any credit for sparing its feelings but concludes that he was ignorant and did not know what the trouble was.

In this connection, however, I must make one last observation which may be considered either encouraging or discouraging, according to the way in which one looks at it. If the family has confidence in its physician and the child dies, it is "an act of God," no matter whether the diagnosis was right or wrong, the treatment good or bad, or what the prognosis. If the family does not have confidence in its physician, the death is due to his negligence, no matter whether his diagnosis, treatment and prognosis were absolutely correct.

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ABSTRACT OF DISCUSSION

DR. EUGENE ROSAMOND, Memphis, Tenn.: After listening to Dr. Morse I feel like a man who might be called on to discuss the epigrams of Epictetus. As usual he has told us the greatest number of truths in the fewest possible words. I am glad he told us that at times an acknowledgment of our ignorance of the condition of the patient should constitute a satisfactory diagnosis. A man might write a book on diagnosis and say less. I am glad he told us that common diseases are usually the correct diagnosis. I find that in consultation work the average young physician is much more apt to hunt for the symptoms of rare and unusual conditions, to hunt on Main Street for bears rather than for sparrows. We are too often prone to depend on one particular thing that we have learned, one particular symptom. I remember that several years ago I made quite a little local reputation for myself because I learned that pneumonia in childhood did not hurt, and because I had learned that when a child coughed and showed signs of pain he usually had an earache. I received a long distance call to come to see a doctor's baby. A district medical society was meeting in his town. He told me he could find nothing in the child's chest, but he had a cough and cried when he coughed. I suggested earache. An ear, nose and throat man was called and confirmed it, and I didn't have to make the night trip. I found myself afterward depending a great deal on this one particular symptom. Dr. Morse has cautioned against paying too much attention to one particular symptom.

OCCLUSIONS OF THE LUMEN OF THE FALLOPIAN TUBE*

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AND
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The physiology and pathology of the lumen of the fallopian tube have been studied in various ways both clinically and in the laboratory. The insufflation test of Rubin has been valuable in demonstrating the patency or nonpatency of the tubal lumen. The injection through the uterus of opaque substances, especially iodized oil, has given limited visual information of both the normal and the pathologic state of the oviducts. It is possible to tell fairly accurately by the iodized oil test where the beginning of obstruction occurs.

The extent of this obstructing lesion, however, has been left to the pathologist to determine. Owing to the laborious task of making serial sections, the nature of the tubal occlusion is seldom accurately ascertained. Our interest in this subject was aroused by observing the progress of patients with pelvic inflammatory disease under conservative management. Such patients who had had definite pathologic changes in the pelvis, in the form of inflammatory masses, were seen to make steady improvement, often with disappearance of all palpable pathologic conditions in a short time. That recovery occurs in numbers of these cases is sufficiently proved by the fact that many patients become clinically well and a few become pregnant later.

These observations led us to the present study. We started this work last year, using materials from several of our hospitals and autopsy clinics. The specimens were studied while fresh and were not put in formaldehyde until after they were injected and photographed. The objects of our investigation were to find (1) the most frequent sites of occlusion of the lumen, (2) the extent of the occlusion, and (3) the microscopic appearance of sections of the involved area, in the hope of finding some evidence of resolution that might help us in determining the best clinical course to pursue in dealing with such a condition.

Hermstein and Neustad [1] and later Geist and Goldberger [2] studied the intramural portion of the tube in its relation to sterility. They used extirpated organs injected through the uterus with opaque substances, but only in those cases in which the tubes were patent. These authors concluded that variations in the course of the intramural portion offer a bar to impregnation, making the passage of sperm or ova impossible, and that such obstructions may be present with or without the closure of the fimbria.

Our study included not only patent tubes but also those with varying degrees of occlusion. In specimens in which the lumens were found by uterine injection to be closed, the tubes were injected from the fimbriated ends. In this way we were able to determine the exact extent of the obstruction. The injection of the lumens of the tubes, from the uterine or tubal ends, is bound to open or spread adherent mucous folds, so allowance was made for this in the interpretation of the pathologic changes. At first we did not attempt to measure the pressure used in injecting these specimens, and as a result we overdistended the endometrial cavity as well as the lumens of the tubes, producing overdilatation, or the injection of blood vessels. In order to control such irregularities, injections were subsequently made with measured pressure and the results were more satisfactory. The uterine and tubal cavities were filled by using pressures of 100, 150, 200 and 250 mm. of mercury. The lowest pressure required to give clear pictures was used. Bismuth mixtures and sodium iodide solutions were employed. The latter gave the best photographic results but were hard to handle because of leakage from different parts of the specimen. The bismuth injection was found to be better for demonstrating diverticula connecting with the lumens, as the bismuth could be seen in the stained

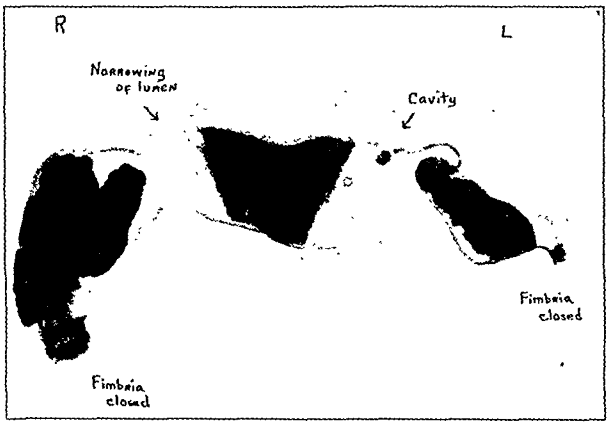

Fig. 1 (case 7).—Appearance of injected specimen in chronic salpingitis. Smears were positive for gonococci. There had been no previous attacks of salpingitis. The present attack started forty-seven days before operation. At left is seen constriction of lumen of intramural portion, with cavity at junction with isthmian portion, dilated ampulla and closed fimbria; at right, narrowing of lumen through the intramural and isthmian portions with widely dilated ampullar portion and closed fimbria.

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* From the Departments of Gynecology and Pathology of the University of Oregon Medical School.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, June 25, 1930.

1. Hermstein, A., and Neustad, B.: Ztschr. f. Geburtsh. u. Gynäk. **88**: 43-60, 1924.

2. Geist, S. H., and Goldberger, M. A.: Surg. Gynec. Obst. **41**: 642-654 (Nov.) 1925.

microscopic sections. The specimens were prepared as follows: The cervix was tied or clamped, as were also the fimbriated extremities unless they were closed by inflammatory processes. Injection was made through a needle inserted into the endometrial cavity. In the event that the occlusion of either tube, in its intramural or isthmian portion, was present, one or both tubes were injected by inserting the needle distal to the obstruction. A similar procedure was used for tubes removed by the so-called Bell-Beuttner method. The fimbriated end of the fallopian tube, even when apparently closed, would seldom stand a pressure of 100 mm. without leakage.

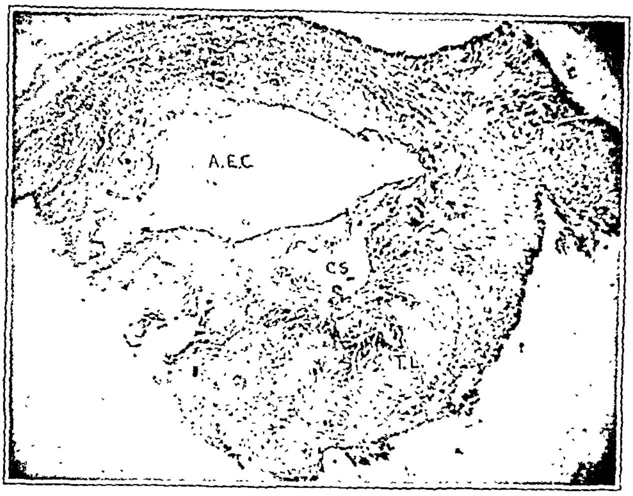

Fig. 2 (case 7).—Section through cavity adjoining the lumen in the intramural portion of the left tube illustrating: *T L*, tubal lumen; *C S*, communicating sinus; *A E C*, large epithelial-lined cavity.

The study included the following types of cases: four that were normal, twenty-six instances of chronic salpingitis, five of fibroids in the uterus, one of adenomyoma of the uterus, and one of carcinoma of the cervix.

The course of the intramural portion of the normal lumen was found to be upward and outward to the point where it joined the isthmian part. It then extended outward in quite a straight line to join the ampullar portion, where a few gentle convolutions occurred. The convolutions seen in normal specimens removed from the body were not fixed convolutions; that is, they could be made or changed at will. Geist and Goldberger[2] however, stated that in 60 per cent of their cases the course of the intramural portion was not a simple direct one but tortuous, either traversing the uterine wall in a series of gentle convolutions up to four in number or in a course marked by one or two decided angulations. They concluded that such variations in the course of the intramural portion of normal tubes may offer a bar to impregnation. The importance of these convolutions is contrary to our observations. We injected a fresh specimen within a half hour after death, before rigor mortis had set in. Numerous convolutions were seen in the intramural and isthmian portions. In the same specimen, by making gentle outward tension on the round ligaments, nearly all these convolutions disappeared. We therefore do not feel that a study of these convolutions in the normal postoperative or postmortem specimens shows the true condition in the living organ. Rubin[3] has shown and pointed out that the average course in the living is nearly always straight outward.

GROSS EXAMINATION

The following observations were made in cases of chronic salpingitis: The specimens showed varying degrees of inflammatory reaction. Adhesions were present in practically all instances. In most cases the inflammatory masses were bound down to the broad ligaments or adjacent structures. Such adhesions produced varying degrees of fixed convolutions, especially in the ampullar portions of the tubes. The uterus likewise was affected by these adhesions. It was frequently held in an abnormal position. The adhesions in the gonorrheal type were filmy and easily broken up, conforming to the observations of Curtis.[4] Different types of pathologic changes in the tubes were found, pyosalpinx, hydrosalpinx, chronic inflammatory conditions that had undergone varying degrees of resolution, and, in some, complete restitution on one side with a tubo-ovarian mass on the opposite side (figs. 9 and 10). Thickening of the walls of the ampullar portion of the tube was present in the extensive lesions, particularly in pyosalpinx. The isthmian portion at times resembled a pipe stem in feeling, often with nodes present along its course. The fimbriae were found to be closed, partially closed or open. The varying degrees of closure were caused either by adherence to the ovarian surface or by serosal contraction of the fimbriated end which was free.[5]

These free extremities were often found adherent to the broad ligament or adjacent structures. In apparently closed tubes, on close inspection, minute openings were frequently found at the site of the fimbria, with portions of the fimbria protruding but not adherent to each other. In others a contraction ring caused the fimbria to be partially closed. The finding of communicating ovarian cavities with the lumens of the tubes in those cases in which the fimbriae were adherent to the ovaries was unusual. In one specimen a tubo-ovarian cyst or hydrosalpinx with a connecting follicucyst was present. It was interesting to note the general shape and size of the tubes in the presence of these inflammatory processes. In general, the right tube had more of a semilunar appearance in comparison to the straighter left one. The right tube, on the average, was also considerably larger than the left (figs. 1, 3 and 10). It was noticed, too, that a greater degree of kink-

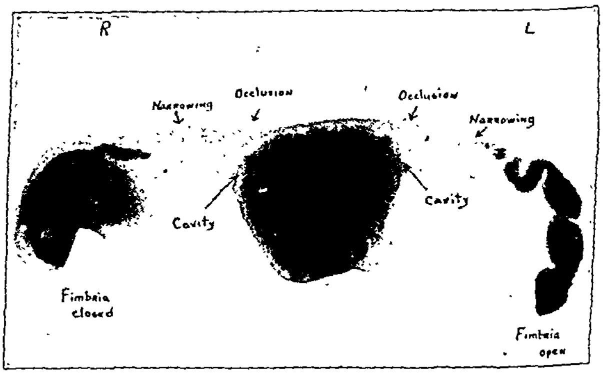

Fig. 3 (case 9).—Appearance of injected specimen in chronic bilateral salpingitis. Smears negative for gonococci. No previous attacks of salpingitis. Present attack started forty-six days before operation. Bilateral cavities at the beginning of the intramural portions with occlusion of the lumen through remainder of intramural portions. Narrowing of lumen of isthmian portions on both sides. Right fimbria closed; *left fimbria open.*

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[3] Rubin, I. C.: Surg. Gynec. Obst. **46**: 87-94 (Jan.) 1928.

[4] Curtis, A. H.: Surg. Gynec. Obst. **23**: 621-631 (Dec.) 1921.

[5] Ries, E.: Am. J. Obst. **60**: 201-212 (Aug.) 1909.

ing in the isthmian portion occurred on the right side. It seemed to us that these variations in shape and size were due to the greater freedom of downward dislocation of the enlarged right tube, while the left was more or less supported by the sigmoid and rectum.

In studying the lumens of the tubes of injected specimens, the occlusions were found to occur in the following locations: In the intramural portion the obstruction varied from a narrowing to a complete closure. Thus, of the forty-nine tubes studied, 30 per cent showed complete closure in this portion, with 22 per cent narrowed. The appearance of a broken line was observed in some and in others a beady appearance was noted. An interesting observation in two instances was the occurrence of cavities along the course of the intramural lumen. In the specimen as shown in figure 3, bilateral cavities, 1 mm. from the beginning of the intramural portion, and 2 mm. in diameter occurred, the lumen being closed beyond to the beginning of the isthmian part. In the specimen as shown in figures 1 and 2, a cavity 3 mm. in diameter occurred in the left tube at the junction of the intramural and isthmian portions, the lumen being patent, coursing into it and from it as shown in the roentgenogram.

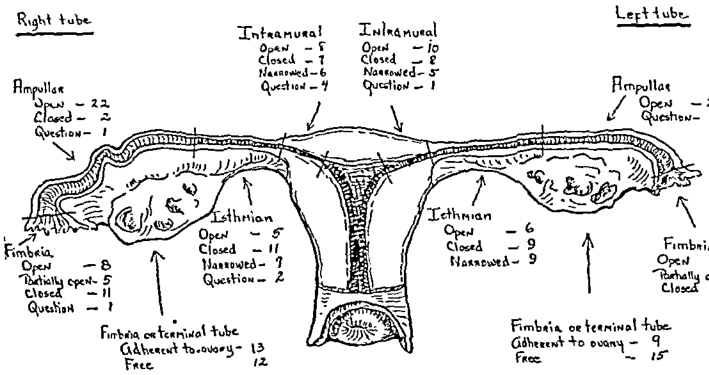

Fig. 4.—Occlusions of the lumen.

In the isthmian portion the occlusions were complete or incomplete, depending on the severity of the infection. Thus, 40 per cent were closed and 32 per cent were narrowed (fig. 4). Minute canaliculi were observed replacing the lumens in several old inflammatory cases. Dilatation of the isthmian part of the lumen was seldom observed even in the hydrosalpinx. This is probably due to its more or less fixed position within the broad ligament and the strong musculature surrounding the lumen. The course of the lumen in this region was frequently tortuous with marked fixed convolutions.

In the ampullar portion the lumen was as a rule dilated, whether the fimbriated end was open or closed (fig. 4). Chronic inflammation seemed to have been responsible for this dilatation, probably owing to distention of the lumen in the acute stage with only partial resolution having taken place at the time the specimen was studied. In only two of the forty-nine tubes studied was the ampullar portion closed, and this may have been due to failure of finding the lumen when the needle was inserted.

The fimbriated end was closed in 38 per cent of the forty-nine inflammatory tubes studied. The occlusions seemed to depend on whether the fimbriae were adherent to the ovary or not; thus, in twenty-two specimens adherent, sixteen, or 72 per cent, were closed. In twenty-seven that were free from adhesions to the ovary, only three, or 11 per cent, were completely closed (fig. 4). The extent of the occlusion varied so greatly in the different specimens that to try to arrive at an average would be of little value. In general, the occlusion varied from 1.5 cm. to 3 cm.

MICROSCOPIC EXAMINATION

The histopathologic changes of chronic salpingitis, as it affects the lumens, are influenced by many factors in addition to the normal complexity of the structure of the fallopian tubes. Malposition of the uterus, and the extent and volume of the inflammation as well as its intensity, play a rôle in the subsequent intrinsic modifications of the wall and lumens. Many interesting changes that involved the character and sizes of the lumens were revealed by microscopic sections made from blocks through the areas in the tubes where the injection materials failed to pass.

Various abnormalities were observed in *and about the intramural and isthmian portions* of the tubal channels. The lumens here presented varying degrees of narrowing but never complete obliteration. These reductions in caliber varied markedly in shape. Some were oval, others slitlike and still others had bizarre formations. Two were found with multiple openings. In general, the openings were compressed in their vertical diameters. Sloughed epithelium was often found in the form of plugs with associated wandering cells, or lying free as a result of postmortem changes or artefacts, induced by injection. In still others the epithelium showed varying degrees of hypertrophy and hyperplasia as well as regenerative changes. The mucous folds were fused at their summits and blunted or flattened out apparently according to the chronicity of the inflammatory involvement of the mucosa or perimucosal structures. In two instances in which pocket-like expansions of the lumen were observed in the gross, communicating epithelial lined sinuses were observed to lead out from the original tubal lumens to accessory epithelial lined cavities of variable size. As many as twenty scattered through the wall of the tube. from the lumen to the serosa, could be seen in a single section

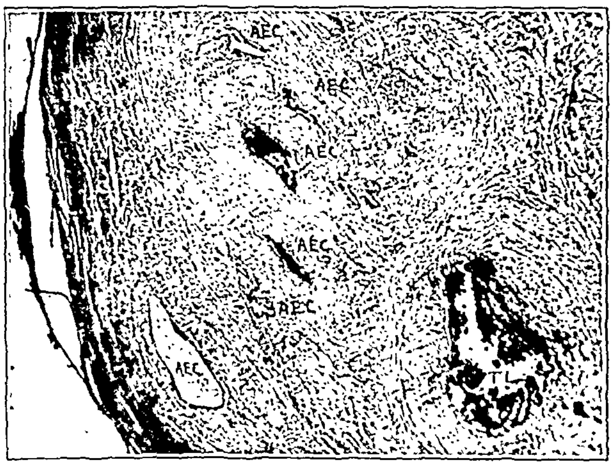

Fig. 5 (case 10).—Structure of tube with narrowing of the lumen and accessory sinuses all containing bismuth deposits: *T L*, tubal lumen; *A E C*, accessory epithelial-lined cavities.

(fig. 5). Bismuth was found to be present in these cavities (figs. 5 and 8). They often contained cores of epithelial and wandering cell débris while the inner surface was lined with a new and modified epithelium. The low cuboidal type predominated, although the tall, cilia-free columnar cells were present in a considerable number. Still others had a squamous cell morphology with evident hypertrophy and hyperplasia that indicated regeneration.

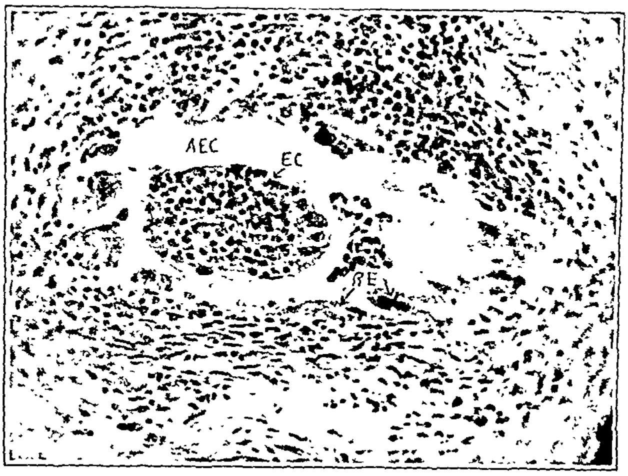

Fig. 6 (case 10).—Character of one of the epithelial-lined cavities with surrounding inflammatory reaction and repair: *A E C*, accessory epithelial-lined cavity; *E C*, epithelial-rimmed core; *R E*, regenerating epithelium around periphery.

The structures surrounding these cavities differed considerably. Some lay in massive collections of polymorphonuclear leukocytes, eosinophils, plasma cells and endothelial leukocytes that replaced the tubal wall structure or pushed it aside. Still others were enclosed in admixtures of similar wandering cells with fibroblasts and smooth muscle. In addition to these, many of the smaller ones were encircled by smooth muscle or fibrous connective tissue without wandering cell infiltration. Such instances were, as a rule, farthest away from the original lumen.

A wide range of structure was observed in the wall about the lumens. In a number of instances there was noted a diffuse hypertrophy of the musculature most marked in the circular layer. In others this was augmented by perivascular fibrosis between the muscle bundles, with here and there sparse collections of wandering cells with the eosinophilic and plasma cell types predominating. In still others the only vestiges of a preexisting inflammatory process consisted of distortion of the muscular pattern by interlacing bands of fibrous connective tissue. Such fibrosis was, in many instances, accompanied by blood vessels with all degrees of occlusions commonly seen in scar tissue. In many of these tubal walls diffuse hyalinization and atrophy associated with varying degrees of edema were noted.

Changes similar to those observed in the intramural and isthmian portions were noted in the ampullar and fimbriated divisions of the tubes. There were, however, none of the accessory epithelial lined cavities here. There was also noted a greater tendency for the processes to occupy the lumens or the perimucosal structures except in the massive inflammatory involvements when the wall was found to be compressed and less extensively infiltrated with inflammatory products. Evidence of tuberculosis was not found in any of the cases.

The constancy of the presence of certain types of wandering cells (eosinophils, plasma cells and endothelial leukocytes) in the light of the gross observations and clinical records leads us to the conclusion that the majority of the instances fall in the category of gonorrheal salpingitis. As the endometrium is the avenue by which acute gonorrheal infection proceeds to the tube, the modifications noted in the intramural and isthmian portions are of especial interest. The expansions of the tubal lumen here into small cavities or ramifying canaliculi emanate, for the most part, from dependent areas. In the isthmian region they extend down toward the broad ligament. It seems probable that mechanical factors are in part operative in determining the direction of burrowing of the infection. Our studies prove the previous suppositions as to the connection of such canaliculi and accessory epithelial lined cavities with the original lumen (injection material in the lumens, figs. 5 and 8). Such disease modifications of the lumens reveal all stages of chronicity. In only one instance were the typical abscess characteristics present (fig. 7). In all others, indications of a well developed healing were present.

A most interesting regenerative power of epithelium is to be noted in these irregularities of the tubal lumens. Aside from the minor desquamations, the epithelium seems to be intact with only partial loss of its cilia and the distortion of its pattern. The rapidity with which it extends into disease-produced cavities even when pus is still present is most remarkable. Epithelial integrity with restoration to a slightly atypical normal often occurs while the surrounding inflammation is still progressive. An indication of the regenerative power of tubal epithelium may be seen in the illustrations taken from the fallopian tubes of two dogs ten days after extensive curettement of the mucosa. This epithelial growth into infected portions of the human fallopian tube is apparently a part of nature's attempt to reestablish the lumen through these obstructed areas which occur at the site of the original lumen or in accessory sinuses produced by the spread of the infection (fig. 6). The vulnerability of the intramural portion and proximal isthmian portion is undoubtedly due to the combined factors of the normally small lumens here, the rigidity of the normal wall and the kinking at the middle of the isthmus as the infection-laden, bulky mass of the distal

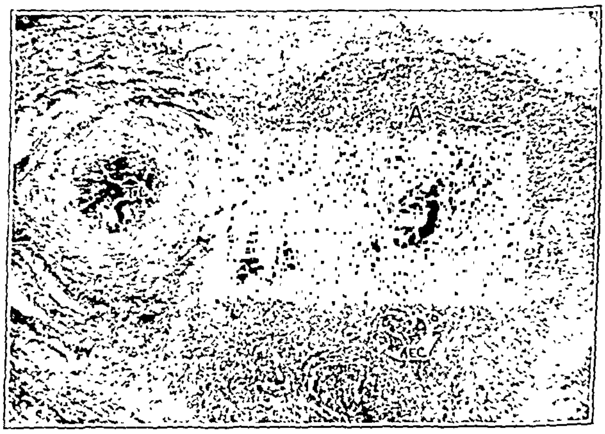

Fig. 7 (case 13).—Chronic salpingitis: Smears were positive for gonococci. *No previous attacks of salpingitis. Present attack commenced* ten days before operation. *T L*, tubal lumen; *A E C*, accessory epithelial-lined cavities; *A*, abscess formation.

portion of the tubes tends to sag into the pelvis. The latter observation is borne out by the frequent vertical flattening of the lumen in the proximal portion of the isthmus.

While the lumens of the fallopian tubes studied showed marked narrowing in the regions of the occlusion seen in the gross, the exact point of obstruction was demonstrated in a limited number of instances. Our observations in the microscopic study of the forty-nine fallopian tubes indicated that the following factors contributed to the occlusion: (1) fusion of the mucous folds by inflammatory expansion and subsequent adhesions; (2) constriction due to pressure of the inflammatory accumulations in the wall outside of the mucosa; (3) multiple inflammatory ramifications of the lumen into the wall of the tube; (4) sloughed cellular débris within the lumens, and (5) valvelike action of swollen mucous tags into the narrowings of the channel. Several or all of these factors were apparently operative in the occlusions studied. Varying degrees of reversal of the pathologic changes were observed and evidences of partial functional reconstruction were seen.

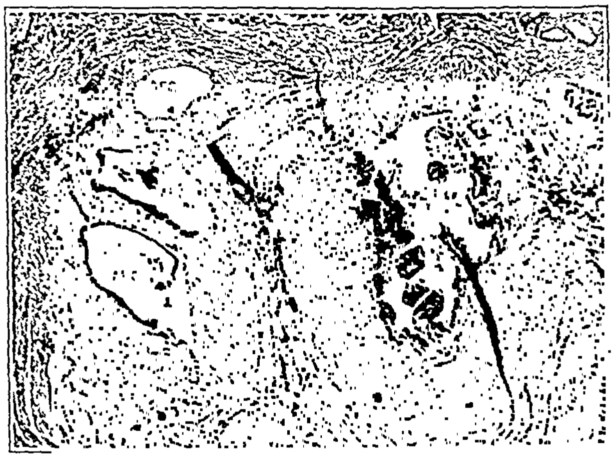

Fig. 8 (case 39).—Chronic salpingitis: Previous attack one year before; *T L*, tubal lumen; *A E C*, accessory epithelial-lined cavities.

Uterine fibroids affecting the cornu of the uterus may also cause distortion of the course of the intramural portion of the lumen producing undesirable angulations, or may encroach on its caliber causing partial or complete closure by external pressure on the tubal lumen. An adenomyoma of the right cornu involved the intramural and the proximal portion of the isthmian parts. The tubal lumen ran through the center of this growth and was occluded by external pressure. The microscopic sections of the tube showed practically no inflammatory reaction.

COMMENT

The information gained as to location, extent, character and resolution of the occlusion of the fallopian tubes in chronic salpingitis leads us to certain speculations as to their clinical rôle and amenability to conservative therapeutic management. As was pointed out in a discussion of the microscopic study, the mechanism of the occlusions differed markedly. The most difficult thing to understand was the various ramifications of epithelial-lined sinuses and cavities in the intramural and isthmian portions. In the majority of such instances studied by us, the contentions of Ries [5] and of Curtis [4] are supported; namely, that these ramifications of the lumen are outward inflammatory extensions rather than wolffian body extensions into the lumen, as is contended by Recklinghausen.[6] In some of the instances, however, the possibility of remnants of the wolffian body being the basis for the accessory epithelial-lined cavities was borne out by the fact that such channels were found without appreciable surrounding inflammation. It is difficult in such instances to establish these changes as evidence of restitution in a healed process. There can be no doubt as to the probable rôle of such irregularities of the lumen as cavities, sinuses and multiple passages in the causation of tubal pregnancy. Nor can one ignore these changes as factors in sterility. That such modifications of the tubal lumens in the intramural and isthmian portions in part determine the extent of the pathologic changes which occur distally is also evident.

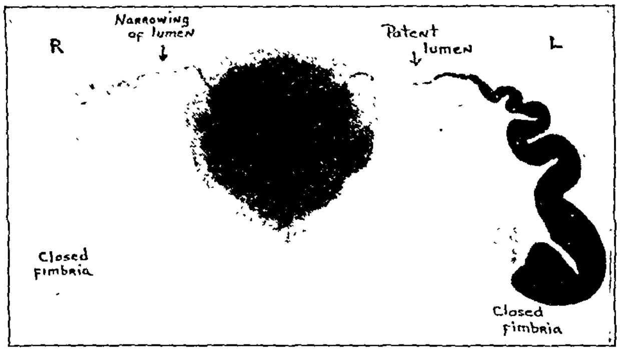

Fig. 9 (case 10).—Injected specimen in chronic bilateral salpingitis illustrating narrowing of lumen of isthmian portion of right tube. Smears were negative for gonococci. No previous history of salpingitis but pelvic symptoms began two years ago. Present attack began forty-five days previous to operation. Injection of outer portion was prevented by mutilation. Fimbria closed. Left lumen patent throughout with exception of fimbria, which is closed by adhesions to surface of ovary.

This study further demonstrated the fact that there is an active regenerative process occurring after the inflammatory condition has reached its height. As all specimens of salpingitis were in the chronic state, we believe that, if further conservative treatment had been carried out, complete resolution of the lumen might have taken place in not a few instances. That the fimbriated end has the power to resolve and become patent is shown by the fact that the fimbriae were seen in several stages of resolution. When adherent to the ovary it would seem that there is less chance for the

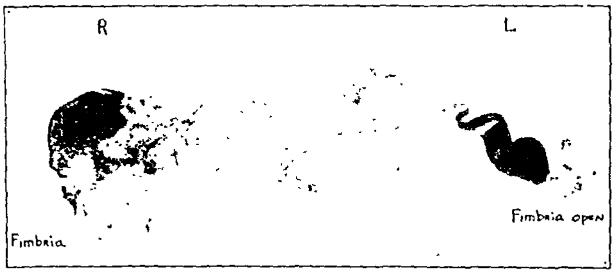

Fig. 10 (case 38).—Chronic bilateral salpingitis with adhesions plus adherent retroversion. Smears were negative for gonococci. Two previous attacks of salpingitis. Lumen of right tube obliterated except dilated ampullar portion. Two attempts at injection from tubal end were made, but lumen of isthmian region would not inject. Tube and ovary bound together in one mass. Lumen of left tube patent throughout its extent with patent fimbria. Fimbriated end was adherent to the posterior leaf of the broad ligament.

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[6] Recklinghausen, F. D., and Freund, W A.: Adenomyome des Uterus, Berlin, A. Hirschwald, 1896, quoted by Ries.

recovery of patency. When free, multiple openings were frequently found at the site of the ostium with fimbriae protruding and little gross evidence of adhesions of these fimbriae to one another. In some cases in which complete resolution of the lumen had occurred, the tube was bound down by inflammatory adhesions to the posterior surface of the broad ligament and adjacent structures. The freeing of such a tube surgically would offer hope of the return of function.

Surgery directed to reestablish the lumen should not be done until an accurate diagnosis is made of the location of the obstruction. If the occlusion is at the fimbria, this may be opened by separation or by resection of a portion. The reestablishment of the lumen of the isthmian and intramural portions by our present operative methods is not satisfactory. Probing of a channel with a diameter of from 0.5 to 1 mm. is likely to produce false passages with secondary scar formation, leaving the tube in no better condition than it was before. Anastomosis of the lumen is impracticable because of its minute size. The removal of the occluded isthmian portion with the insertion of the remaining outer portion into an opening in the uterine cornu as recommended would not only leave a weakened uterine wall, but the resulting contraction of the scar in the cornu would seem to contract down and obliterate the newly formed channel. Conservative management, with the regenerative processes which follow the eradication of the infection originally causing the obstruction, seems to offer the greatest hope of reestablishment of the lumen of the isthmian and intramural portions. Insufflation or the injection of fluids through the lumen may aid in reopening the channel.

SUMMARY AND CONCLUSIONS

1. Forty-nine fallopian tubes were studied with reference to occlusions of the lumens.
2. A method of demonstrating the extent, character and resolution of the occlusions by the injection of bismuth, is presented.
3. Occlusions of the lumen may occur in any portion of the tube.
4. The most frequent site of occlusion is in the isthmian portion.
5. Resolution of the lumen depends on the absorption of the products of inflammation.
6. Healed abscess cavities and canaliculi demonstrated by bismuth injections are important causes of extra-uterine pregnancy.
7. The fimbriated end when not adherent to the ovary is frequently open or partially so.
8. In our cases, tubo-ovarian abscesses communicating with abscess cavities in the ovary were not found.
9. Operations to reestablish the lumen should never be contemplated until a definite diagnosis of the location of the obstruction is made.
10. Surgery to reestablish the lumen of the tube is not satisfactory when the occlusion is located in the intramural or isthmian portions.

Medical-Dental Building

ABSTRACT OF DISCUSSION

Dr. L. E. Burch, Nashville, Tenn.: About ten years ago, Curtis of Chicago demonstrated that gonococci could not be found in the tube after the temperature and leukocyte count had returned to normal limits, and today the authors have shown us the great regenerative power of the tubal epithelium. Both of these papers show what will happen with conservative treatment. It has happened to me in the past on more than one occasion to advise the removal of tubes and then at a later date see these patients conceive in the very tubes that I had advised removal. The tubal cavities shown by the authors are most interesting. It is also important to remember that 72 per cent of tubes were occluded that were adherent to the ovary and only 11 per cent were occluded that were not adherent to the ovary. I heartily endorse the authors' conservative views, and I should like to emphasize again the importance of conservatism in the management of pelvic inflammation. In pelvic inflammation the foci of infection in Skene's ducts, Bartholin's glands and the cervix should be eliminated and the tubes treated in a palliative way. I trust that the authors will continue their study along this line. I should like to make one suggestion, and that is that they take a like number of normal tubes, which can be procured from postmortem material or possibly from fibroid cases, and use these as controls and see whether they will throw any additional light on tubal occlusion.

Dr. Arthur H. Curtis, Chicago: The thought that physicians are going forward with conservatism in the treatment of tubal disease of gonococcal origin must be pleasing and encouraging to all. Great interest should be shown in the extension of glandular pockets into the wall of the tube, away from the lumen. I discovered, years ago, by making serial sections and longitudinal sections through the fallopian tubes after gonococcal infection, that the many glandular nests in the wall of the tube all connect with the lumen and serve as possible pockets for entrapping impregnated ova, thus predisposing to tubal pregnancy. I would urge great care in the use of iodized oil. I fear that nation-wide employment of this diagnostic aid will be followed with an aftermath of inflammatory reactions. I plan always, in infectious processes in which the disease is limited to the genitalia, to avoid iodized oil or similar solutions if I am relatively positive concerning the pathologic condition. I have known of several instances in which iodized oil was injected and operation followed rather shortly thereafter, in which the peritoneal reaction was found to be very severe. Instillation of iodized oil is a diagnostic measure of value but must be used with a great deal of caution. My experience is that operations for relief of sterility on diseased tubes are usually futile unless the fimbriated ends of the tubes can be opened. If it is only the fimbriae that are occluded and they can be teased open by blunt dissection, there is excellent prospect of relief of the sterility. But very nodular or markedly enlarged tubes are not usually amenable to surgical relief of sterility. I favor the instillation of iodized oil in those cases in which there are no palpable pathologic changes in which detailed information is required in anticipation of operative relief of sterility.

Dr. Emil Novak, Baltimore: I was interested in the illustrations of the glandlike invasion of the tubal musculature. Such pictures are not uncommon in inflamed tubes, being apparently produced by the exaggerated proliferative activity of the tubal epithelium because of the inflammation. In other cases, more particularly at the cornu, the inclusions are found to consist of what are apparently typical endometrial glands, surrounded by a mantle of what is equally typical endometrial struma. The latter picture is similar to that seen with the ordinary adenomyoma of the uterus, with which it is probably identical. I would emphasize, as Dr. Curtis has done, that, while tubal disease should be treated as conservatively as possible, the outlook for fertility in the ordinary gonorrheal type is not especially good. And this in spite of the fact that, even with isthmian inflammatory changes, a lumen still is present, as demonstrated by tubal insufflation or injection. It is perhaps true that formerly even more pessimism was felt, for it was taken for granted that isthmian inflammatory changes would practically always obliterate the lumen in that portion of the tube. It has been this consideration, indeed, which influenced many physicians from any frequent use of the operation of salpingostomy. Why open up the fimbriated end if the tube is closed near the uterus? If, however, the uterine end is often patent, as recent work indicates, there would be justification for a more frequent resort to salpingostomy in an effort to relieve sterility. One other point may be stressed, and that is the difference in prognosis as between gonorrheal and streptococcal cases. The latter are very frequent, especially in these days of criminal abortion. Those who, through error in diagnosis or otherwise, have been unfortunate enough to open the abdomen in cases of streptococcal infection of the tubes, will recall that the tubes have been large, with enormous interstitial involvement, and massive thickening of the broad ligaments (cellulitis), but with little involvement of the mucosa, and usually a patent orifice. Tubes of this type often undergo resolution, and subsequent pregnancy is common. With gonorrhea the inflammation is primarily from within, with destruction of the mucosa and early sealing of the tubes, so that the outlook, as far as fertility is concerned, is much less favorable.

Dr. Nathan Sears, Syracuse, N. Y.: Dr. Curtis mentioned a point which I think should be stressed. A few years ago I was treating a young maried woman for acute gonorrhea. In the course of time it became necessary or convenient for her to go to another city, and while there she visited another physician, who in the midst of this acute infection felt it necessary to determine the patency of her tubes. She is now sterile, is leading a very unhappy married life, and recently, in order to satisfy partially her desire for motherhood, has adopted a child. Too much emphasis cannot be placed on the care with which any of the methods are used for determining the patency of the fallopian tube in the presence of any known infection in the pelvis.

Dr. Raymond E. Watkins, Portland, Ore.: In the cases studied, we found that occlusions of the lumen occurred more frequently in all portions of the right fallopian tube; that is, there were more occlusions of the intramural, the isthmian and the fimbriated ends on the right side than in the corresponding portions of the left. This is probably of some significance, for I noticed this afternoon, in the paper on extra-uterine pregnancy, that it was stated that extra-uterine pregnancies had occurred more frequently on the right side. We interpreted the more frequent occurrence of right-sided occlusions as being due to the fact that the sigmoid probably prevented the left fallopian tube from dropping down deep into the pelvis. This may in some way be a factor in drainage or perhaps by some other means. In any event, the left tube is less frequently occluded. We also found the right inflammatory mass larger than the left in the majority of cases.

HABITUAL DISLOCATION OF THE SHOULDER

RESULTS OF TREATMENT, ESPECIALLY BY THE TENOSUSPENSION OPERATION *

MELVIN S. HENDERSON, M.D.
ROCHESTER, MINN.

Habitual dislocation of the shoulder occurs rarely, and its occurrence following ordinary traumatic luxation is not known. In 1921 and again in 1926 I[1] reported cases in which operation had been performed at the Mayo Clinic; a total of thirty patients were operated on. The present report includes further observations on the patients of this series, and on seven additional patients on whom operations have been performed since 1926.

ETIOLOGY AND PATHOLOGY

The one definite etiologic factor in the thirty-seven cases was that of primary traumatic dislocation; most of the patients attributed the dislocation to severe trauma, fall or violence. French observers insist that congenital malformation of the humeral head can generally be found, but I have not been able to substantiate this observation, and such experience has not been common in this country. General examination occasionally disclosed slight atrophy of the deltoid muscle and roentgenologic examination disclosed slight roughening or notching of the head of the bone at the upper margin which was attributed to trauma incident to the numerous dislocations. Defects in the glenoid cavity have been advanced as a cause, but proof of this by roentgenograms or by observations at operation has been lacking. It is my belief that the large majority of habitual dislocations is due to laxness of the anterior inferior portion of the capsule, but I have been unable to demonstrate this to my satisfaction in performing capsulorrhaphy. However, my conception of what the tension of the normal capsule of the shoulder should be is equally hazy, since the opportunity is seldom afforded of examining the normal shoulder capsule in the living. It is difficult to produce a dislocation by passive motion in a case of habitual anterior dislocation, even when the patient is anesthetized. I have tried to do it in a number of instances and succeeded only once. Voluntary muscular action is necessary, such as takes place when the shoulder assumes the position of forward abduction, a weak part in the capsule permitting the head to luxate. On the other hand, in cases in which posterior, "snapping" dislocation takes place, it is easily produced by passive motion.

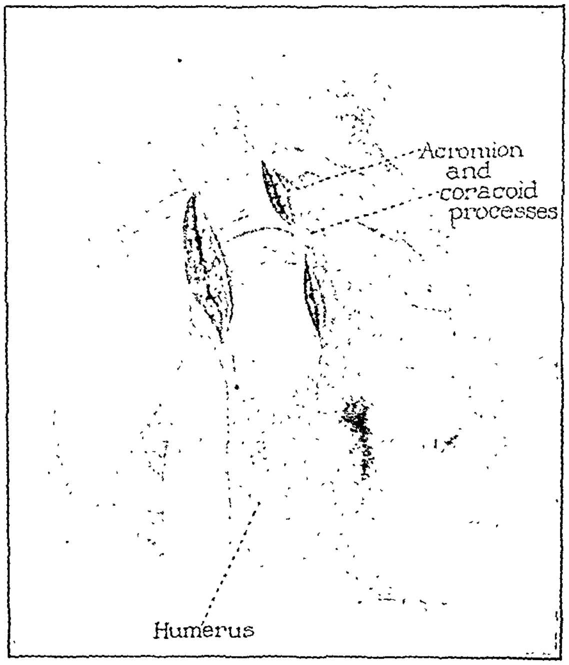

Fig. 1.—Incisions used in the shoulder.

SYMPTOMS

Usually the history given by the patient is that the primary dislocation was produced by severe trauma, and that following the reduction the arm either was not protected or it was protected for a short time only. The pain is severe and unrelieved until reduction is effected. The second dislocation may be produced by equally severe trauma, but as a rule subsequent dislocations occur without trauma or violence. The simple act of reaching forward for some object at about the level of the shoulder is the most common movement

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* From the Section on Orthopedic Surgery, the Mayo Clinic.

* Read before the Section on Orthopedic Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Henderson, M. S.: Habitual or Recurrent Dislocation of the Shoulder, Surg. Gynec. Obst. **33**: 1-7 (June) 1921; "Tenosuspension" for Habitual Dislocation of the Shoulder, Surg. Gynec. Obst. **43**: 18-25 (July) 1926.

causing dislocation. Swelling seldom follows, soreness lasts for a few days only, and pain due to involvement of the nerves does not occur. In a few of the cases dislocation was produced so easily that the patients were sometimes awakened from sound sleep by it. In one case only was primary dislocation produced without trauma, and this occurred when the patient jumped over a fence, the shoulder slipping out when he elevated his arms to balance himself. Although reductions become easier as dislocations become more frequent, a particularly difficult reduction, in which the difficulty is often due to bunglesome attempts at reduction, may be the cause of the patient consulting the surgeon for relief.

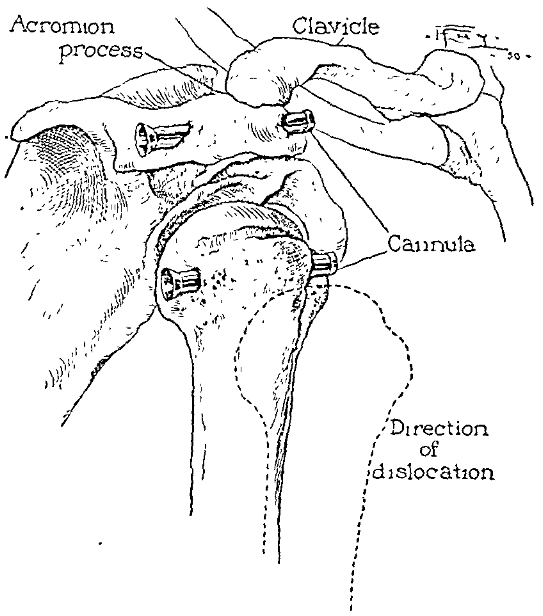

Fig. 2.—The drill holes in the acromion process and the head of the humerus; the cannulas are in place.

Tavernier [2] emphasized the importance of distinguishing clearly the habitual dislocations from the occasional recurring dislocations due to trauma which do not carry an unfavorable prognosis and which do not indicate treatment other than that of simple reduction. Until the dislocations are really habitual, surgical measures should not be urged.

Habitual dislocations are almost always of the subcoracoid type, the head resting under the coracoid process. Posterior dislocations are not common, are not so painful and may be of the snapping type. Twenty-five of the patients in the series were males and twelve were females. Twenty-nine of the patients were between the ages of 20 and 40 years. The duration of the complaint varied from six months to twenty-five years, and the number of dislocations varied from 2 to 100 or more. It can be appreciated how severely the patient's endurance has been taxed by 100 dislocations, and by the uncertainty which he feels concerning the likelihood of their occurrence.

TREATMENT

Conservative treatment is limited to the wearing of an apparatus that acts as a check to abduction and forward elevation of the arm. If nocturnal dislocations occur, and especially if epilepsy is a complication, the apparatus must be worn at night. Occasionally, shoulders which have dislocated two, three or four times will, under such a regimen, lose the habit, and the patients will not have further trouble. Too often, however, the dislocations become increasingly frequent, and it is then that surgical intervention is indicated. In some cases in which only a few dislocations have occurred the patients had a feeling of insecurity and apprehension that justified operation.

One has only to review the literature and read the descriptions of the numerous ingenious methods that have been devised for the treatment of habitual dislocation of the shoulder to realize that the results of surgical intervention have not been altogether satisfactory. Because of the rarity of the condition, it is unusual for one surgeon or one clinic to be able to base an opinion on a large series of cases; so the reports of other observers, even though the cases are few, are read with much interest. That is my reason for publishing, from time to time, data concerning results in these cases. My experience with the condition now extends over more than eighteen years.

Structurally, the shoulder joint is weak, and the bony support is practically nil. The only bony check is furnished by the acromioclavicular process which stops upward dislocation: therefore, muscular tonicity and the capsule must furnish the chief stability. The operations devised for the prevention of dislocations may be divided more or less satisfactorily and arbitrarily into five types: (1) those performed on the bony structures; (2) those performed on the capsule; (3) muscle transference and muscle lengthening; (4) check and block operations, bony or ligamentous, and (5) suspension operations.

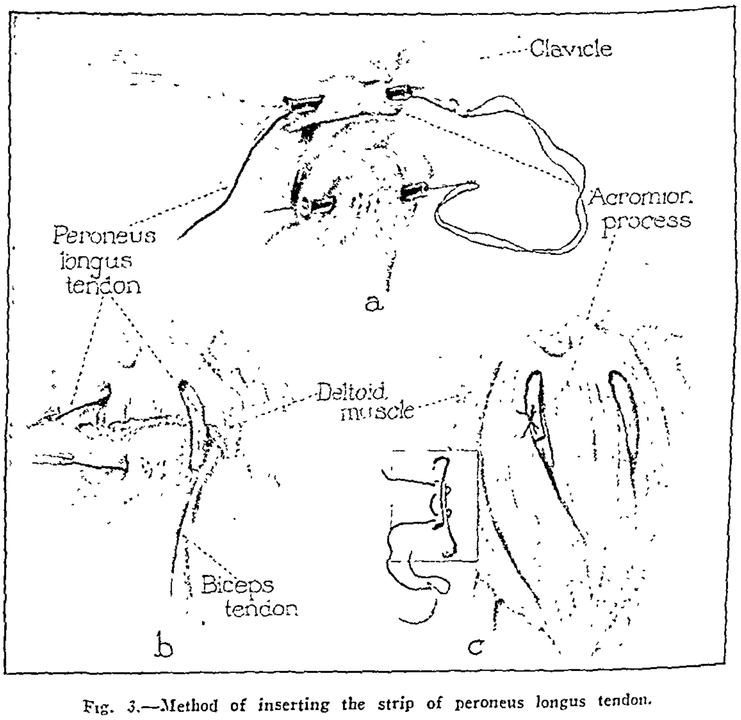

Fig. 3.—Method of inserting the strip of peroneus longus tendon.

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[2] Tavernier, L.: The Recurrent Luxation of the Shoulder, J. Bone & Joint Surg. **12**: 458-461 (April) 1930.

Operations on the Bony Structures.—Only brief consideration need be given such radical procedures as arthrodesis and excision of the head of the bone. I excised the head in a patient who was epileptic and had suffered numerous and distressing dislocations in epileptic seizures. The head was distorted, the result of a fracture which had occurred from a roughly executed reduction. Excision through the anatomic neck relieved the patient. Hildebrand,[3] many years ago, by deepening the glenoid fossa from behind and thus making more prominent the anterior margin, aimed to prevent the head from dislocating. Eden[4] and Speed[5] accomplished the same thing by placing a bone graft along the anterior inferior margin of the glenoid fossa. They reported favorable results. I have had no experience with this type of operation, so I do not feel qualified to judge of its merit.

Operations on the Capsule.—Under this heading are included only those operations that deal with the capsule alone. Most of the dislocations are anterior, and reefing the capsule (anterior capsulorrhaphy) has been advocated for many years. Ricard,[6] in 1894, advanced this method and Thomas[7] has been an ardent exponent of the procedure. When the dislocation is posterior, posterior capsulorrhaphy is performed. Capsulorrhaphy, as will be noted, has been performed in the clinic in a considerable number of cases.

Muscle Transference and Muscle Lengthening.—Attempts have been made to utilize some of the powerful muscles or portions of them so that the muscular action will prevent dislocations. Clairmont's[8] well known operation of this type consists of dissection of the posterior fourth or fifth of the deltoid muscle, along with a portion of its insertion, lifting it upward, then tunneling through the quadrilateral space of the posterior axillary fold and fastening the muscle to the coracoid process, thus making a muscular sling for the head. In my experience, the chief criticism of this operation, aside from the necessity of two good-sized incisions and considerable dissection, has been the difficulty of getting muscle of sufficient length so that it be could be fastened readily to the coracoid process. Frequent failures caused me to abandon the operation. It should be noted, however, that if the procedure is successful the results are most satisfactory, because of the full and normal range of motion that is finally attained. I attribute the failures to the difficulties of technic and the tendency for degeneration in the distal portion of the transplanted muscle.

Heymann[9] attacked the problem by transplanting the short head of the biceps from the coracoid process, fastening it securely to the upper rim of the glenoid fossa, and sewing it to the capsule. He contended that the action of this muscle tends to reinforce the capsule and thus prevents dislocations. He mentioned six patients, all soldiers, who were cured so far as he knew; the follow-up data were not definite.

Young[10] expressed the belief that if the pectoralis major and latissimus dorsi were lengthened, the mechanics which produce dislocation would be altered. This operation is now out of favor.

Check and Block Operations.—On the supposition that a check to prevent abduction will prevent dislocation, Gallie and Le Mesurier[11] devised an operation whereby a hole is drilled anteroposteriorly through the neck of the scapula. Through this hole is threaded, from behind forward, a piece of fascia lata, knotted at the end. This is carried down and fastened through another drill hole to the under surface of the humerus, the exact site to be determined by the surgeon, who judges as to the amount of abduction to be permitted. This ligament acts as a check to abduction and thus prevents the arm from assuming the position of forward abduction in which dislocations occur. The objection that may readily be raised to this procedure is that restriction of motion is permanent.

On the premise that a block in the path of the dislocating head would stop the dislocations, a bony block was devised by Oudard[12] and elaborated on by Lenormant.[13] Briefly, their operation consists of splitting the coracoid process and elongating it so that it forms a block shaped like an elephant's trunk, against which the head impinges as it slips downward and forward in a typical subcoracoid dislocation.

Suspension Operations.—It has been logically argued that if the head can be suspended to the bony arch above and so prevented from slipping downward dislocation will not occur. This hypothesis has resulted in a number of operations, some simple and some complicated. Spitzy[14] aimed to provide suspension by the aid of an artificial ligament, namely, wrapping silk around the surgical neck of the humerus, knotting it in front, and running the long ends of the strands up and fastening them to the coracoid process, at the same time overlapping them with the capsule.

Carrell[15] described a rather complicated but ingenious operation, whereby the long head of the biceps tendon is divided and the distal end sewed to the short head. The proximal end of the divided tendon is further elongated by a strip of fascia lata which is carried posteriorly through the axilla, swung up and fastened through a drill hole to the acromion process behind. A simpler operation described by Nicola[16] appears to be sound. He divided the tendon of the long head of the biceps, drilled a hole which extended from the bicipital groove below upward to the middle of the head, and through this drill hole pulled the tendon of the long head of the biceps and fastened it to the distal end of the severed tendon at the lower end of the tunnel. He informed me that it has been used about twenty times by himself and others, with uniformly good results.

Joseph,[17] in 1917, employed fascia lata to make an extra ligament running from the head of the humerus to the acromion process. I have performed and described an operation of the same character, "tenosuspension," so called because true tendon, the peroneus longus, is used instead of fascia lata. A strong piece, half thickness to full thickness of the tendon, is placed through holes bored through the acromion process or even through the acromioclavicular articulation and the head of the humerus, providing a strong ligament that interferes with the motion of the shoulder little if any.

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[3] Hildebrand: Beitrage zur operativen Chirurgie, Arch. f. klin. Chir. **66:** 347-376, 1902.

[4] Eden, Rudolf: Zur Operation der habituellen Schulterluxation unter Mitteilung eines neuen Verfahrens bei Abrisz am inneren Pfannenrande, Deutsche Ztschr. f. Chir. **144:** 269-280 (March) 1918.

[5] Speed, Kellogg: Recurrent Anterior Dislocation at the Shoulder: Operative Cure by Bone Graft, Surg. Gynec. & Obst. **44:** 468-477 (April) 1927.

[6] Ricard, quoted by Tavernier (footnote 2).

[7] Thomas, T. T.: A New Method of Excising the Head of the Humerus, Ann. Surg. **66:** 492-495 (Oct.) 1917.

[8] Clairmont: Ueber neue Operationsmethoden bei habituellen Schulterluxation, Wien. klin. Wchnschr. **30:** 1507 (Nov. 22) 1917.

[9] Heymann, E.: Zur Behandlung der habituellen Schulterluxation, Zentralbl. f. Chir. **54:** 1411-1414 (June) 1927.

[10] Young, J. K.: Recurrent Dislocation of the Shoulder-Joint, Ann. Surg. **63:** 375 (March) 1916.

[11] Gallie, W. E., and Le Mesurier, A. B.: An Operation for Relief of Recurring Dislocation of the Shoulder, Tr. Am. S. A. **45:** 392-398, 1927.

[12] Oudard: La luxation récidivante de l'épaule (variété antéro-interne), Presse méd. **1:** 201-202 (Feb. 15) 1928.

[13] Lenormant, C.: Luxation récidivante de l'épaule traitée par le procédé d'Oudard modifié: Résultat après six mois, Bull. et mém. Soc. nat. de chir. **54:** 31-33 (Jan.) 1928.

[14] Spitzy, Hans: Stabilization of the Shoulder Joint for Habitual Dislocation, Surg. Gynec. Obst. **46:** 256-257 (Feb.) 1928.

[15] Carrell, W. B.: Habitual Dislocation of the Shoulder, J. A. M. A. **89:** 948-952 (Sept. 17) 1927.

[16] Nicola, Toufick: Recurrent Anterior Dislocation of the Shoulder: A New Operation, J. Bone & Joint Surg. **11:** 128-132 (Jan.) 1929; Recurrent Dislocation of the Shoulder: Its Treatment by Transplantation of the Long Head of the Biceps, Am. J. Surg. **6:** 815 (June) 1929.

[17] Joseph, Eugen: Eine neue Operation zur Verhütung der habituellen Schulterverrenkung, Berl. klin. Wchnschr. **1:** 525 (May 28) 1917.

Tenosuspension was performed in twelve of the cases. Two of the operations are too recent to be reported on and therefore are excluded from consideration. The time elapsing from operation to the latest report varies from six months to six years: in one case the time since operation is six years; in one, five years; in one, four and a half years; in one, three and a half years; in one, two years; in two, one year; in two, eight months, and in one, six months. Three patients in the group were subject to epileptic seizures.

The technic of tenosuspension is simple and is facilitated by the proper instruments. I am convinced that the success of the operation depends on using a piece of strong tendon, such as the peroneus longus, and seeing to it that the ends of the tendon are sewed snug but not tight enough to cause necrosis, and that the tendon is roughened sufficiently on its smooth surface so that it will grow tight to the bony channel in which it is placed. Several failures occurred in treatment of lax acromioclavicular and sternoclavicular articulations following suture through drill holes with fascia lata, but none occurred if a piece of the peroneus longus was used. Because of these early experiences, I have never used the fascia lata in suspension operations on the shoulder, feeling that it is generally inadequate to withstand the strain. I am confident that the failures and consequent discredit to this type of suspension operation are due to the fact that fascia lata was used instead of peroneus longus or, if tendon was used, that the tendon was not well placed. I have had no experience with the operation of Nicola, but it appears to be logical and sound, and it will be interesting to note results as it comes into more common use.

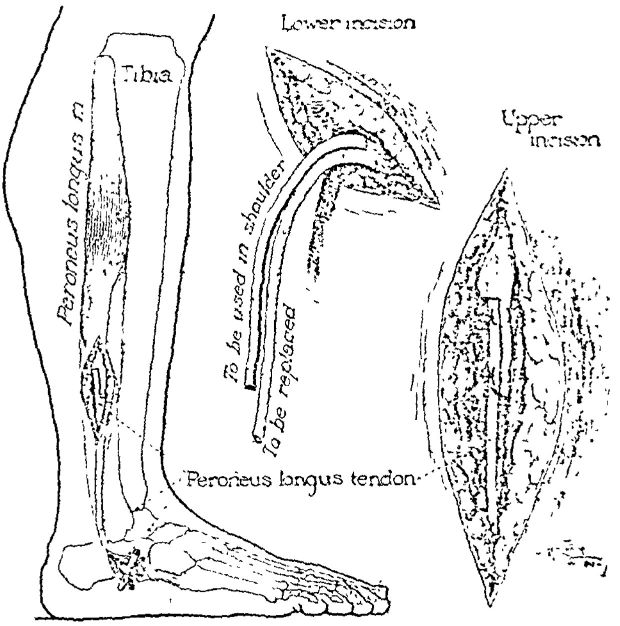

Fig. 4.—Method of removing the piece of peroneus longus tendon.

For tenosuspension, the patient is placed on the sound side between sandbags, with the affected shoulder uppermost. The skin is prepared in the ordinary manner and towels are arranged so that the head of the patient is covered; the anesthetist also is draped out of the field. The forearm and hand are wrapped in a sterile sheet, so that the arm can be moved around at will. The leg on the same side is prepared from the knee down so that incisions can be made for removal of the peroneal tendon. A tourniquet is not used on the leg.

One incision is made posteriorly, extending from the posterior aspect of the acromion process downward onto the head of the humerus. Two small incisions are made in front, one is made over the acromial area, and another over the head of the humerus (fig. 1). Parallel holes are then drilled through the acromion process or even through the acromioclavicular joint and through the head of the humerus (fig. 2). A cannula one-fourth inch in diameter is pushed through each drill hole so that the tendon will pull through easily (fig. 3).

The tendon is obtained from the peroneus longus by aid of two small incisions, one in the lower third of the leg and one over the tendon as it courses along below, and a little forward of, the external malleolus. The tendon is loosened through the upper incision and cut with a step, and with curved forceps is further loosened in its sheath and is pulled out through the lower wound. Approximately half of this tendon is then removed for the making of the autogenous ligament. The remaining portion is then pulled back upward through its sheath behind the external malleolus and the stepped ends fastened together (fig. 4). I have found that it is not necessary to use the entire thickness of the tendon as it is larger than is really necessary, and the saving of half of the tendon will offer assurance that there will be no weakness of the leg. It has been my experience, however, that removal of the entire tendon can be carried out without causing any subsequent weakness of the ankle provided the distal and proximal ends are fastened to the peroneus brevis, for the tendon of that muscle is adequate for function.

The wounds are closed, dressings are applied in the usual manner, and the arm is held to the side for approximately eight to ten days, when some movement is permitted. Abduction to a right angle is not permitted for five or six weeks. If the patient is subject to epileptic seizures, protection should be given for three or four months.

COMPARISON OF END-RESULTS FOLLOWING OPERATIVE PROCEDURES

The data presented here have been gathered in the last eighteen years (from 1912 to 1930), and comprise forty operations on thirty-seven patients (tabulation). Two types of capsulorrhaphy have been performed, the anterior and the posterior. The posterior operation is done on the posterior part of the capsule for posterior dislocations, and the anterior operation is done on the anterior part of the capsule through an anterior approach for anterior dislocations. There were sixteen anterior operations and three posterior. Six of the sixteen patients (37.5 per cent) have remained well over a period of more than ten years, the last operation having been done in 1920. Four patients report that they are better, and six report failure. Such a small percentage of success is not satisfactory. The three patients on whom posterior capsulorrhaphy was performed were cured. Eight

Clairmont operations, all more than five years ago, resulted in four cures. In this group also the percentage of success is too low. The operation described by Young was done in two cases, with failure in both. In the case in which the head of the bone was excised the result was good. Of the twelve instances in which tenosuspension has been done, ten patients are apparently relieved of all symptoms, and although some have complained of a certain limitation of abduction in the shoulder, the majority have an excellent and practically normal range of motion. As has been said, the other two operations were done too recently to justify a report. Therefore, from my experience, there seems to be little argument as to which operation is the best. Time will tell, of course, whether all patients on whom tenosuspension was performed will continue in satisfactory condition, but I believe that failures will be due to faulty technic. The technic as now practiced is simple and quickly carried out. The joint is not opened. The use of the peroneus longus muscle does not produce subsequent disability. Two of our patients were boxers and both were able, after tenosuspension operations, to participate in boxing matches, with no weakness in their legs or ankles. In case of dislocation subsequent to operation, from whatever cause, the result is listed as a failure.

Results of Forty Operations for Habitual Dislocation of the Shoulder

Operations	Cures Effected		Improvement Only,	Failure,	
	Per Cent	Number	Number	Number	Total
Capsulorrhaphy:					
Anterior	37.5	6	4	6	16
Posterior	100.0	3	..	..	3
Clairmont	50.0	4	1	3	8
Young	....	..	..	2	2
Excision of head	100.0	1	..	..	1
Tenosuspension..	100.0	10	..	..	10
Total		24	5	11	40*

* Number of patients operated on, thirty-seven.

SUMMARY

The report comprises forty operations on thirty-seven patients. Anterior capsulorrhaphy, done on sixteen patients for anterior recurring dislocation, resulted in cure in 37.5 per cent; all of these operations were done more than ten years ago. Three patients who underwent posterior capsulorrhaphy for posterior dislocation remained well. Of eight patients who underwent Clairmont operations more than five years ago, 50 per cent were cured. Tenosuspension performed on ten patients has resulted in cure in 100 per cent of cases to date; in two cases the operations have been done for more than five years; in two, for more than three years; in one, for more than two years; in two, for more than one year; in two, for more than eight months, and in one, for more than six months. The success of the operation depends on the careful placing of a strong piece of the tendon of the peroneus longus muscle to act as a suspension ligament through drill holes in the acromion process and the head of the humerus. The incisions can be kept small in size, which is a worthy consideration in women.

ABSTRACT OF DISCUSSION

Dr. Fremont A. Chandler, Chicago: Henderson's experience is unique in many respects: first, the remarkably large number of cases presenting this unusual condition; secondly, the opportunity for comparison of several types of operations for the relief of this condition, and, thirdly, the careful end-result study and analysis that he made. Anatomically the shoulder joint is dependent on its capsular and muscular structures for stability throughout its wide range of motion, with the exception of the uppermost quadrant, which is protected by the acromion process. That a point of weakness of supporting structures exists in the antero-inferior quadrant is generally recognized and accounts for the frequency of subcoracoid luxations. Recurrent dislocations in epileptic patients are usually associated with the tonic spasms of the attack and may give no history of preceding trauma to the shoulder. In the nonepileptic cases a definite history of shoulder trauma may be elicited, and the secondary dislocations are usually associated with voluntary abduction, such as throwing the arm out for a tackle in football, or raising the arm for an overhead stroke or service in tennis. In this position the head of the humerus rests against a defective fulcrum, and dislocation follows the contraction of the muscles acting on the upper end of the humerus. Impingement of the greater tuberosity on the acromion process also levers the head from the glenoid. Frequently reduction is easily effected by the patient, and as violent sport is avoided, no considerable disability is present. In other cases the dislocation may be severe and a phobia may develop, as in dislocations of the patella. The treatment by tenosuspension, if properly carried out, is not difficult, and the results are satisfactory, a ligamentous sling from the acromion process preventing pressure at the point of capsular weakness. Capsulorrhaphy in the shoulder, as in the knee and hip, is not easy to do efficiently. Transplants of portions of the deltoid through the quadrilateral space below the head of the humerus to the corocoid process are extensive procedures, and it is unreasonable to expect the muscle tissue to do other than atrophy, leaving no firm tissue to reinforce the capsule. Bone blocks at the margins of the glenoid have great merit mechanically if they are large enough to build up the anterior and inferior quadrants, a procedure not easily accomplished by most operators. The loop operations of Carrell and the ligamentum teres operation of Nicola successfully employ the principle of suspension so favorably reported by Dr. Henderson.

Dr. W. B. Carrell, Dallas, Texas: Dr. Henderson's method of suspension is on a sound mechanical basis, fairly simple in application. His results warrant its acceptance as a good operation. The use of fascia instead of tendon, as suggested, causing failure in some cases, may be further emphasized. Five years ago I had two failures in athletic men, on whom the humerus had been suspended with fascia. At the time I attributed the failure to inadequacy of the method for patients who would later follow strenuous athletic sports. On exposure of the shoulder in both cases, the fascia was intact as a fibrous cord but long enough to permit partial subluxation. With tendon, the result might have been different. To correct this recurrence, an operation was devised which seemed to have the features of a suspension combined with a reefing of the capsule. In addition, the suspension feature had more direct support by anchorage to the glenoid, looping under the neck and suspended to the acromion. The method is described in the literature, and my results in a limited number of cases have been 100 per cent in preventing dislocation and excellent as regards free motions in the shoulder. Of ten patients, four were athletes who subsequently played football, and two were epileptic. The last two had tendon instead of fascia transplant, but all have held satisfactorily. My impression now is that I prefer the Henderson operation in the average case and my own method for the athletic patient. With the enthusiasm of authorship I have convinced myself that it is not a difficult procedure, but I am convinced that the surgeon without this incentive will find Dr. Henderson's technic less difficult to follow accurately.

Dr. R. O. Ritter, Chicago: My experience with the tenosuspension operation has been very limited. I have had some experience with suspension by fascia lata, which has not been entirely satisfactory because there have been partial dislocations at various times. My experience with nine or ten Clairmont operations has been excellent in all cases except one. These have included football players and men playing professional ball. One of these patients remained intact for three years after the operation. He dislocated his shoulder at the end of that time by catching a moving street car. He was thrown violently to the ground and was picked up with a dislocation of the shoulder. Recently I have had the experience of using the long head of the biceps tendon according to Nicola, and I was impressed with the ease with which it is done. It is all executed through one incision, being done rapidly, easily and without much bleeding, which is much to be desired in an operation of this kind. The Clairmont operation is too much of an operation; there is too much exposure of tissue and too much bleeding. The fault, perhaps, with the Nicola operation is the point that Dr. Henderson mentioned. Dr. Henderson's incisions are very small, making the scar formation inconspicuous. The Nicola operation makes a rather long scar, which would be a distinct disadvantage in women. Whether this biceps tendon will stand the strain, I do not know. The one I did was done just two weeks ago. The patient was epileptic and whether the tendon will stand that strain I am not sure. The wound healed perfectly, without any reaction or swelling, and the patient says that his arm feels more secure than it did. I think, as far as the ease and rapidity with which the operation can be done is concerned, that using the long head of the biceps is very satisfactory.

Dr. Melvin S. Henderson, Rochester, Minn.: Dr. Carrell's operation is a suspension operation, but it has the additional advantage of being somewhat of a capsulorrhaphy. There seems little doubt that if the operation is properly done and the different steps are accomplished as they should be, it will relieve the condition. The only criticism, if it could be called a criticism, that I have of it is that it is rather complicated. I forgot to mention in my presentation, although it is in the text of my paper, Nicola's operation. It appears to me to be a simple and practical procedure, and I shall watch the final results with much interest. We have not tried it at the Mayo Clinic because we desired first to test thoroughly the tenosuspension operation herein described. The results that I am able to report I believe entitle the tenosuspension operation to a position well in the front rank in the somewhat large number of operations described for habitual dislocation of the shoulder. For tenosuspension, the peroneus longus should be used and not fascia lata. If the latter is used, it is not a tenosuspension. I think fascia lata is entirely inadequate and will not fulfil the duties put on it.

CHRONIC ANTERIOR UVEITIS

CLINICAL OBSERVATIONS *

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LOS ANGELES

Chronic anterior uveitis is one of the few ocular lesions that have no standardized, uniformly accepted nomenclature. This disease, which has been in the last twenty years the subject of numerous investigations, mostly pathologic, is characterized by: (1) a slow insidious course, so that years may pass without any serious visual impairment; (2) a primary involvement of the anterior part of the uveal tract, iris and ciliary body; (3) a lack of acute inflammatory signs and symptoms, such as pericorneal congestion, pain, photophobia and lacrimation, and (4) the presence of precipitates on the posterior surface of the cornea. The lack of irritation is only relative: not infrequently the eyeball becomes congested and the patient complains of some discomfort or pain. The same is true regarding the precipitates that are found in chronic anterior uveitis in most instances, but not necessarily in every case. The fundamental and permanent characteristics, the chronicity of the process and the localization in the anterior part of the uvea are well embodied in the name accepted for the present discussion, "chronic anterior uveitis."

It is surprising how much confusion still exists in ophthalmic literature with regard to this matter of nomenclature. The "hydromeningitis"[1] of Wardrop[1] and the "aquocapsulitis" of de Wecker[2] are terms not used any more except as curiosities, but "desceinetitis" and "punctate keratitis" with and without quotation marks can be still found in modern textbooks and articles. Both these terms are entirely inadequate because they substitute a corneal condition for a uveal lesion. "Serous iritis" is another prevalent term for chronic anterior uveitis, although the ciliary body is affected in this condition as much as the iris (the same argument is valid in reference to Shieck's[3] "iritis obturans"), and the exudate in chronic anterior uveitis is not serous but distinctly cellular. For the same reasons Ball's[4] classification of the disease as a "serous cyclitis" cannot be accepted, particularly his interpretation of it as a "catarrhal inflammation of the ciliary glands." In the light of newer slit lamp investigations the term simple "cyclitis," introduced long ago by Fuchs in place of "serous iritis," is also discredited, and in his latest contribution on this subject Fuchs[5] himself speaks in favor of the term "uveitis" rather than either "iritis" or "cyclitis."

NONSPECIFIC TREATMENT OF CHRONIC ANTERIOR UVEITIS IN LATE SYPHILIS

In his monograph on "Syphilis and the Eye," Igersheimer[6] discusses the subject of chronic anterior uveitis due to syphilis in very few words, emphasizing its great rarity: ". . . whereas genuine serous iritis as a specific inflammation is very rarely observed" (während reine Iritis serosa, als specifishe Entzündung, sehr selten beobachtet wird). Although Ridley (cited by Igersheimer[6]), Mayou,[7] Urbanek[8] and others have given considerable attention to syphilis as an etiologic factor in the origin of chronic anterior uveitis, I adhered for some time to Igersheimer's opinion, and in my own work cases of chronic anterior uveitis in syphilitic patients were particularly scrutinized as to any other possible cause of the uveal lesion. However, in at least five cases of chronic anterior uveitis observed in my private practice in the last four years, a thorough examination failed to reveal any other etiology of the uveitis except the syphilitic infection. In two cases some foci of infection were found, but their removal had no effect on the course of the uveitis. In view of the wide variety of ocular lesions caused by syphilis, I felt justified in assuming that the uveitis in these cases was also syphilitic in origin. It is interesting to note that in all of them the general syphilitic infection was of long duration, from fourteen to thirty-two years. One patient presented early signs of tabes; another, those of dementia paralytica. The condition was obviously a late ocular complication in syphilis, quite different from the usual type of acute iridocyclitis in the secondary stage. The tendency to parasyphilitic manifestations observed in this small series of cases is also worth mentioning because it has a bearing on some therapeutic considerations.

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* Read before the Section on Ophthalmology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Wardrop: Essays on the Morbid Anatomy of the Human Eye, London, 1808.
2. De Wecker: Traité complet d'ophthalmologie, Paris, 1886.
3. Schieck, F.: Das Wesen der Iritis serosa und ihre Beziehungen zur Cyclitis und zum Glaucom, Ztschr. f. Augenh. **43**: 625, 1920.
4. Ball, J. M.: Modern Ophthalmology, Philadelphia, F. A. Davis Company, 1926.
5. Fuchs, Ernst: Iritis serosa oder Cyclitis chronica? Ztschr. f. Augenh. **57**: 6, 1925.
6. Igersheimer, J.: Syphilis und Auge, Berlin, 1928.
7. Mayou, S.: Discussion on the More Chronic Forms of Anterior Uveitis, Brit. M. J. **2**: 1324 (Oct.) 1910.
8. Urbanek, Josef: Die Bedeutung der Tuberculose für die entzündlichen Erkrankungen des Uvealtractus, Berlin, 1929.

In four of the five cases antisyphilitic treatment was given and, although it was conducted vigorously and for a prolonged period, no improvement could be noticed. Therefore, in two cases nonspecific therapy was resorted to with the most encouraging results:

Case 1.—D. H., a man, aged 40, contracted syphilis about twenty years before and since then had been treated systematically. Nov. 26, 1927, the condition of the left eye was as follows: visual acuity, counting fingers at 5 feet; no pericorneal congestion; precipitates on the posterior surface of the cornea; pupillary reactions sluggish; opacities in the anterior part of the vitreous.

A thorough physical examination, including tuberculin tests (Dr. Herman Sugarman), did not reveal any other pathologic change except early tabetic signs. Antisyphilitic treatment was continued for a period of more than six months. The eye was meanwhile getting worse, until the patient lost projection of light, and a complicated cataract developed. Eight injections of a preparation of lactalbumin were then given without any general or focal reaction. It was only in April, 1928, that the tuberculin treatments were started. Shortly after that the precipitates started to disappear, the exudate in the anterior chamber rapidly absorbed, and the projection of light was restored. In January, 1930, I performed an uneventful extraction of the cataract with a resulting visual acuity of 20/100.

Case 2.—Mrs. H. M., aged 61, was referred to me on account of severe pain in the left side of the head. On examination the tension of the left eye was found to be increased. There were precipitates on the posterior surface of the cornea, some of them pigmented. The anterior chamber was very deep; the pupillary reactions were sluggish. In the vitreous a few floating opacities were found.

On general examination by Dr. H. J. Gunderson, the patient presented numerous signs of incipient dementia paralytica. The blood Wassermann reaction was suspicious, and the spinal fluid was definitely positive. No foci of infection could be detected; the tuberculin test was negative. Antisyphilitic treatment failed to relieve the eye condition. The patient was hospitalized, and typhoid vaccine was used intravenously. Within four weeks the only remains of the chronic anterior uveitis were slight corneal opacities in the part in which precipitates were adherent to Descemet's membrane for a long time.

In this case the action of typhoid vaccine was obviously nonspecific. In case 1 some further elucidation of its therapeutic aspects seems to be advisable. The success of tuberculin therapy in case 1 brings up the question whether or not the uveal lesion was of a tuberculous nature, particularly because of the prevailing opinion (Urbanek, von Hippel,[9] Gilbert[10] and others) that tuberculosis is the chief etiologic factor in chronic anterior uveitis. It must be remembered, however, that in this case the tuberculin test was negative, that no evidence of systemic tuberculosis was found, and that in the ocular lesion no clinical suggestion of tuberculosis, such as iris nodules or retinal perivasculitis, could be detected. On the other hand, it was known to ophthalmologists long before the theory of nonspecific protein therapy came into existence that, in some typical syphilitic cases of parenchymatous keratitis, tuberculin was more effective than mercury or iodides. That one nonspecific agent, lactalbumin, failed to produce any reaction, while the use of the other one, tuberculin, resulted in a complete cure, is a fact worthy of serious consideration. In a previous communication I[11] emphasized the fact that at the present state of our knowledge the use of nonspecific agents is no more than a clinical experiment. Neither the type of protein to be employed nor the dosage and intervals or even the mode of use is definitely established, and in no case can the effect of the nonspecific agent be foreseen. What is needed for further advancement in this field is less speculation and more facts, properly studied and critically analyzed. That is why I am omitting entirely the tempting analogy between the use of nonspecific agents in progressive paralysis and their use in ocular manifestations of late syphilis, limiting myself to the following statement: that nonspecific therapy is of distinct value in the management of chronic anterior uveitis, which is likely to occur in late syphilis more frequently than has hitherto been admitted.

RETINAL DETACHMENT IN THE COURSE OF CHRONIC ANTERIOR UVEITIS

In the terminal stage of chronic anterior uveitis the eyeball, when totally blind and painful, is often enucleated. A pathologic examination in these cases reveals frequently a more or less complete separation of the retina (Gilbert, von Hippel) which cannot be diagnosed clinically because of the opaque media: dystrophic cornea, complicated cataract and dense vitreous opacities. This type of retinal detachment does not differ in any way from the one commonly found in atrophy of the eyeball and is caused by the organization of massive exudates in the vitreous and in the retina itself. Strictly speaking, it is not to be considered as a complication of chronic anterior uveitis, since in the terminal stage of the latter condition there is a generalized severe plastic uveitis, as well as advanced degenerative change in various tissues of the eyeball.

In the available literature I found only one case of retinal detachment complicating the early course of chronic anterior uveitis—that observed and described in 1928 by Ernest Thomson.[12] As to the reports of Heine,[13] Lauber,[14] Lowenstein[15] and Schall[16] on retinal detachment caused by uveitis, it must be stated that in their cases the inflammatory process was localized in the posterior part of the uvea rather than in its anterior portion. In addition, all of them were of tuberculous origin, and Schall, who has made the most thorough investigation of this subject, reports that the primary changes have taken place in the retina itself, in the form of extensive periphlebitis.

Under these circumstances I feel justified in reporting three cases of retinal detachment diagnosed ophthalmoscopically in a comparatively early stage of chronic anterior uveitis:

Case 3.—H. M., a man, aged 29, appeared in my office, May 5, 1928, complaining of poor vision in the left eye. On examination a typical picture of chronic anterior uveitis was found in the left eye. There was little irritation; a number of precipitates were present on the posterior suface of the cornea; the pupillary reaction was sluggish, and the vitreous had many floating opacities. No changes were found in the fundus. The intra-ocular pressure was 12 mm. (Schiötz). A thorough physical examination failed to reveal any definite disorder. The tuberculin test, however, was positive and tuberculin treatments were advised. Locally, hot applications, atropine, ethylmorphine hydrochloride and subconjunctival injections of sodium chloride were administered. Within the next two months the condition of the left eye greatly improved, and the visual acuity came up from counting fingers at 2 meters to 20/100.

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[9] Von Hippel, E.: Ueber tuberculose, sympathisierende und proliferierende Uveitis unbekannter Aetiologie, Arch. f. Ophth. **92**, 1917.

[10] Gilbert, W.: Die Erkrankungen des Uvealtractus, Berlin, 1922.

[11] Beigelman, M. N.: The Untoward Effects of Protein Therapy in Ophthalmic Practice, California & West. Med. **30:** 404 (June) 1929.

[12] Thomson, Ernest: Unilateral Chronic Anterior Uveitis in Children: A Clinical Note, Brit. J. Ophth. **12:** 189 (April) 1928.

[13] Heine, L.: Klinisches und Anatomisches zur Frage der Amotio Retinae, besonders der Heilungsvorgange, Klin. Monatsbl. f. Augenh. **72:** 305, 1924.

[14] Lauber, H.: Ein Fall von doppelseitiger tuberkul. Uveitis mit Netzhaut-Ablösung, Klin. Monatsbl. f. Augenh. **70:** 246, 1923.

[15] Lowenstein, A.: Aetiologie und Behandlung der Netzhaut-Ablösung, Klin. Monatsbl. f. Augenh. **73:** 784, 1924.

[16] Schall, E.: Ueber Ablatio Retinae bei Tuberculose, Arch. f. Ophth. (von Graefe's) **109:** 205, 1922.

July 7, 1928, the patient came in complaining that he had suddenly noticed an increase in the amount of floating opacities in the left eye. On examination the eye was found to be unusually soft, 6 mm. (Schiötz), the media fairly clear, and the fundus without any changes. The next day a detachment of the lower part of the retina was diagnosed. The type of detachment was serous; no retinal tear could be detected. The intra-ocular pressure was 8 mm. In the next few months the detachment gradually progressed until the perception of light was totally lost.

Case 4.—E., a man, aged 54, came to consult me from the state of Sonora, Mexico, because he was gradually losing sight in the right eye. A mild noncomplicated case of chronic anterior uveitis was diagnosed. All foci of infection had been previously eliminated without any effect on the eye; the tuberculin test was doubtful; the blood Wassermann reaction was + + +. The usual local care and vigorous antisyphilitic treatments were advised.

In four weeks the patient returned complaining that he could not see the upper part of objects in front of him. On ophthalmoscopic examination a serous detachment of the whole lower half of the right retina was found. From subsequent communications I have learned that the patient has lost the sight in this eye entirely.

Case 5.—C. H., a man, aged 28, healthy and robust, presented on examination, March 11, 1929, the picture of chronic anterior uveitis in the left eye. The sight in this eye was reduced to counting fingers at 2 feet. Both the cornea and the vitreous were sufficiently opaque to make a detailed ophthalmoscopic examination difficult. However, no gross fundus changes could be diagnosed. The patient remained under my care for only a short time. He returned in about six months with a loss of light perception in the upper half of the visual field of the right eye. It was with great difficulty that the detached retina could be detected in the opaque vitreous.

In the next few months a secondary hypertension due to complete seclusion developed.

In considering the possible mechanism of retinal detachment in these cases, the so-called primary exudation due to choroiditis might be eliminated first. As Leber[17] pointed out, this type of retinal separation is characterized by a prompt and permanent reattachment of the retina. In the three cases reported the detachment progressed from bad to worse and resulted, in all, in complete blindness.

Traction by organized exudate has been mentioned already as the causative factor of retinal detachment in the terminal stages of chronic anterior uveitis. But in the early part of this condition there is no evidence, either clinical or pathologic, that a cicatrization sufficient to displace the retina is taking place, and an assumption to the contrary is hardly justified. Turning to the facts that may help in elucidating the pathogenesis of retinal detachment in the foregoing cases, we must first consider the changes in the vitreous body. In all these cases signs of vitreous liquefaction, such as floating opacities, hypotony and deepened anterior chamber, were present. From a liquid vitreous the fluid may under certain circumstances become absorbed through direct contact with the choriocapillaris whenever a tear is formed in the retina, or possibly through the epithelial surface of the ciliary body. On another occasion, I[18] discussed the factors that might cause or facilitate this absorption. Once a sudden loss of vitreous has occurred, the rigidity of the intact sclera will not allow the eyeball to collapse, and a transudation from the choroid with a resulting retinal detachment may take place. I admit that this assumption is no more than a working hypothesis, but it seems to have a firmer foundation than any of the previously mentioned views. It is of particular interest that in case 3, in which the onset of the separation was observed step by step, a surprisingly sudden hypotony had taken place immediately before the retina became detached, as though the contents of the eyeball diminished at once.

TRANSIENT MYOPIA IN CHRONIC ANTERIOR UVEITIS

John Green[19] was the first to call attention, in 1887, to the transient myopia occurring in connection with iritis. In his own case of bilateral iritis, Green noticed in the period of convalescence that his impaired distance vision could be greatly improved by concave glasses of about — 1.75 diopters. This refractive change persisted for six weeks, while atropine was being used freely. A similar transient myopia was subsequently observed by Green in many of his patients. Strangely enough, this interesting observation, which could be easily studied in a large amount of material, failed to arouse the interest of ophthalmologists. Outside of a casual mention of "accommodative myopia" by Eversbusch[20] in 1906, nothing was done until 1922, when Sédan[21] discussed this phenomenon in detail.

In the same year Ellett[22] reported the first case in which temporary myopia preceded the onset of sympathetic ophthalmia. In 1925 Marchesani,[23] not knowing of Ellett's contribution, described two identical observations, and finally in 1929 Swab[24] gave a detailed history of a similar case.

The following is the first report on transient myopia observed as the earliest sign of chronic anterior uveitis, when no other evidence of the latter condition could be detected:

Case 6.—Miss A. S., aged 28, Negro, came to the clinic of the Eye and Ear Hospital of Los Angeles complaining that in the preceding three days she had become "nearsighted." On examination the left eye was found totally blind as the result of a severe plastic uveitis. There was a seclusion and occlusion of the pupil; organized exudate was present in the anterior chamber, and the cornea was cloudy. In the right eye the media were perfectly clear and the fundus was normal. With a —3.00— D. she had a visual acuity of 20/20. A spasm of accommodation was suspected and the patient was given atropine which, however, proved to be ineffective. A week later the aqueous was found to be somewhat cloudy, and minute deposits appeared on the posterior surface of the cornea. A typical chronic anterior uveitis developed, while the "myopic" condition of the eye gradually disappeared.

Obviously the condition in this case was a refractive change due to an increased convexity of the lens. A spasm of accommodation, admitted by some investigators, has been disputed by others because of the fact that the condition was not influenced in any way by the use of atropine. In Nicati's[25] opinion the underlying cause of "transient myopia" is a paralysis rather than a spasm of the ciliary muscle: the anterior part of the ciliary body, in which the muscle for "distance accommodation" is situated, becomes affected first, and its paretic condition results in an overaction of the antagonist—the deeper lying muscle for "near accommodation." Whether Nicati's explanation of the origin of "transient myopia" in uveitis is agreed with depends on whether or not one accepts his views on the anatomy and physiology of the ciliary muscle.

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[17] Leber, T.: Die Krankheiten der Netzhaut, Leipzig, 1916.

[18] Beigelman, M. N.: Acute Hypotony in Retinal Detachment, Arch. Ophth. 1:463 (April) 1929.

[19] Green, John: On a Transient Myopia Occurring in Connection with Iritis 4:599, 1887.

[20] Eversbusch: Pentzoldt-Stintzings Handbuch der gesamten Therapie, Berlin, 1911.

[21] Sédan, J.: Myopie inflammatoire à la suite d'une iritis syphilitique, Marseille méd. 59:871, 1922.

[22] Ellett, E. P.: Report of Two Cases of Sympathetic Ophthalmia Presenting Unusual Features, Tr. Am. Acad. Ophth. & Otolaryng. 27:203, 1922.

[23] Marchesani, O.: Beiträge zur sympathischen Ophthalmie, Ztschr. f. Augenh. 57:44, 1925.

[24] Swab, M.: Sympathetic Ophthalmia with Myopia as Initial Symptom, Am. J. Ophth. 11:461 (June) 1928.

[25] Nicati, W.: Physiologie oculaire, Paris, 1909.

The onset of transient myopia following a uveitis can be observed without difficulty, but it is only the patient who has lost the sight in one eye, as in sympathetic ophthalmia, who will report with a refractive change preceding a uveitis. The accumulation of similar observations in the course of chronic anterior uveitis is of importance because it points toward a primary involvement of the ciliary body, with a possible subsequent spreading of the inflammatory process either through continuity or through an excretion of the causative agent (bacteria, toxins) into the intra-ocular fluids.

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STRYCHNINE POISONING IN CHILDREN *

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Strychnine is not generally considered as a cause of fatal convulsions in small children. But little is said of this form of poisoning in textbooks on pediatrics, although it occurs in infants more than in older children and adults. The two cases here reported show a number of features in common with the other cases of strychnine poisoning that occur in this country each year.

I have been chiefly interested in the number of cases, the age incidence, the manner of poisoning in children, the laws regulating the sale of strychnine, and the prophylactic measures that might be attempted to lessen the number of these tragedies that seem to occur each year.

Case 1.—A. M., a girl, aged 2 years, was brought in convulsions to my office by her mother, Dec. 8, 1928. The mother had noted at 4:30 p. m. that the child appeared "frightened by a vacuum cleaner and was unable to walk as usual." Soon the baby fell, becoming stiff and rigid. The convulsions had since been constant. At first the parents could remember nothing unusual that the child had eaten. After the child was in the hospital, they did recall that between 1 and 2 p. m. she had eaten several cathartic tablets that a physician had given to the grandfather. The tablets had been left in a drawer and the child had been found at the open drawer with tablets in her hand. The parents had not at the time considered the ingestion of a few cathartic tablets as dangerous. There was no warning on the containing envelop, nor had they been warned to keep the tablets from the child. The child was admitted to the hospital at 5:20 p. m.

She was so hypersensitive that the least manipulation aggravated the convulsions. No complete physical examination was made, as the child was under constant treatment for convulsions. There was rigidity of all muscles; the face and legs were cyanotic. No risus sardonicus was present. The pulse was 140; the respiration, 45. The legs were abducted, the toes in flexion. There was spasm of the arms and legs. The pupils were widely dilated. The convulsions were constant.

Treatment consisted of morphine, a hot bath, colonic irrigation and lavage. The condition seemed slightly better; the cyanosis and muscle spasm became less. The child became cyanotic while the tube was in the stomach, the muscles stiffened, and the child died suddenly at 6:35.

The autopsy showed hypostatic congestion of dependent parts and cyanosis. The hands were clenched, the feet inverted, the toes drawn down, and the abdomen distended. There was extensive congestion and edema of the lungs. The left ventricle and the auricles were relaxed. There was general congestion. Three pills were found partly digested in the stomach. Some edema of the meninges was present. Each sugar coated pill contained aloin, ¾ grain (0.05 Gm.); extract of nux vomica, ½ grain (0.03 Gm.), and extract of belladonna, ⅛ grain (0.008 Gm.). The number of tablets taken was not known.

Case 2.—W. C., a boy, aged 4 years, seen with Dr. John Finigan, May 4, 1929, arose before the parents in the morning. No one saw him take any tablets. About 7:15 a. m., the child was taken with convulsions and was brought to the hospital about 8. A bottle which had contained Hinckle's cascara tablets was found empty. It was estimated to have contained about ninety tablets. Each tablet contained strychnine sulphate, 1/60 grain (0.001 Gm.); aloin, ¼ grain (0.016 Gm.); podophyllum, ⅕ grain (0.013 Gm.); extract of belladonna, ⅛ grain (0.008 Gm.); cascarin, ¼ grain (0.016 Gm.), and ginger 1/16 grain (0.004 Gm.). The past history was negative. The child probably took ninety tablets containing 1½ grains (0.09 Gm.) of strychnine and 11 grains (0.7 Gm.) of extract of belladonna. This must have been between 6 and 7 o'clock. He called his mother and began to have convulsions at 7:15. The convulsions continued until 8:45 or 9, at which time they were under the control of gas and oxygen or chloroform. An anesthetist was present until 1 p. m. to keep the severe convulsions under control. The patient's temperature was 103 F.; the pulse rate was 120, and the respiration 24. The pulse later went up to 180 and the respiration to 40.

Morphine and magnesium sulphate were given. Stomach washing gave a large amount of dark brown return smelling strongly of cascara. The patient relaxed and would keep quiet for several minutes after an anesthetic. The pupils were at first widely dilated. The skin was flushed; this cleared up first. Toward the afternoon the pupils became smaller. He died suddenly at 2:40 p. m. after resting quietly for some time. The temperature at death was 109.5 F.

Medication consisted of morphine and 25 per cent magnesium sulphate, 4 cc. subcutaneously at 9 and 11:30 a. m. Magnesium sulphate was given also by mouth. Colonic irrigation gave fair results. No autopsy was obtained.

It is evident that both strychnine and belladonna poisoning was present in each case. In neither case was diarrhea found; in fact, the returns from irrigations were unsatisfactory.

Each of the children, unknown to their parents, ate sugar-coated cathartic tablets intended for adults. The parents were unaware that the tablets contained poison and had taken no special care to keep them away from their children. This is not an unusual occurrence.

INCIDENCE

The number of cases reported in medical literature does not show the incidence of strychnine poisoning in children. A physician is not likely to see a series of cases and, owing to the brief duration of the condition in fatal cases, they are not under supervision long enough for extensive examinations and reports. The accident is investigated by the coroner and the only general report is that in the daily press.

In an analysis of sixty cases of drug poisoning admitted during a six year period to the Hospital for Sick Children at Toronto, Murray[1] reports fourteen cases due to strychnine with three deaths. "One quarter of the sixty cases and nearly one-half the deaths were due to strychnine poisoning." The cases of strychnine poisoning were all due to A. B. S. & C.

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[*] From the Pediatric Department of the Genesee Hospital.

[*] President's address, read before the Rochester Pediatric Society, May 9, 1930.

[1] Murray, L. M.: An Analysis of Sixty Cases of Drug Poisoning, Arch. Pediat. **43**: 193-196 (March) 1926.

pills, the usual formula of which is aloin, $\frac{1}{2}$ grain (0.03 Gm.); extract of belladonna, $\frac{1}{16}$ grain (0.004 Gm.); strychnine, $\frac{1}{120}$ grain (0.0005 Gm.), and extract of cascara sagrada, $\frac{1}{2}$ grain (0.003 Gm.). While occasional cases with recovery are reported, the incidence of the condition is best shown by mortality statistics. Unfortunately, in most states, strychnine poisoning is listed under number 177 in the international list of causes of death with strychnine under subdivision 7 (others). As a result, no records of deaths from strychnine are recorded or can be obtained and it is not possible to show causes, age incidence and other interesting details. It would seem that strychnine poisoning should be listed separately to bring out its importance as a cause of accidental deaths in children. The Bureau of Census does show the incidence of strychnine poisoning in the death registration area of the United States, but no tabulation is made of these deaths by ages nor are the circumstances of the poisoning indicated.

The registration area in 1928 covered 95.4 per cent of the total population of the United States. The number of cases of strychnine poisoning for 1926, 1927 and 1928 were 178, 179 and 189, respectively. In Rochester there were fifteen such deaths reported from 1914 to 1929. Seven were males and eight were females. Eleven were children under 5 years of age and of these six were under 2 years of age. In 1924, seventy deaths due to accidental poisoning occurred among children from 1 to 4 years of age who were insured in the Industrial Department of the Metropolitan Life Insurance Company.[2] Definite information as to the type of poison was reported in fifty-seven of the cases. Strychnine caused twenty-four deaths. Seven of these children had eaten cathartic pills and three tonics containing strychnine. "It is truly astonishing to find so many deaths from strychnine poisoning, indicating that this cause, though perhaps not the commonest type of poisoning found among children, is certainly the most important from the standpoint of fatality."

In answer to our inquiry concerning the figures for 1926, 1927 and 1928, the statistical bureau of the

TABLE 1.—*Accidental Poisonings of Children Five Years of Age and Under in New York State (Exclusive of Greater New York) During 1926, Classified Under International List 177*

Kind of Poison	Age	Statement of Cause of Death
1926		
Arsenic (rat paste)	4	Acute toxemia from arsenic poisoning accidentally drunk
Atropine	1	Atropine poisoning accidental
Belladonna	1	Poisoning from eating pills composed of aloin, belladonna and strychnine
Camphorated oil	6 mo.	Poisoning from accidental administration of camphorated oil by mouth
Caustic potash	1	Accidental poisoning by taking caustic potash
Lye	1	Lye poisoning accidentally
Lye	1	Lye poisoning
Phosphorus	3	Poisoning; swallowed a piece of fireworks; accidental
Phosphorus	3	Poisoning; swallowed a piece of fireworks; accidental
Phosphorus	2	Poisoning of phosphorus from eating nigger-chasers
Pitch	2	Poisoning by eating pitch
Soldering fluid	1	Complete obstruction of pyloric end of stomach causing starvation (drank some soldering fluid)
Strychnine	11 mo.	Strychnine poison
Strychnine	10 mo.	Strychnine poison from cathartic tablets accidentally
Strychnine	1	Convulsions due to eating a number of tablets of strychnine
Strychnine	1	Accidentally poisoned from eating strychnine tablets
Strychnine	1	Accidentally poisoned by strychnine sulphate
Strychnine	2	Took 8 or 10 tablets of strychnine by mistake
Strychnine	2	Strychnine; swallowed cathartic tablets; accidental
Strychnine	2	Probably strychnine poisoning; accidental
Strychnine	3	Strychnine poisoning; accidental
Strychnine	1	Accidental poisoning by strychnine
Strychnine	1	Strychnine; swallowed six tablets containing strychnine poison
Strychnine	1	Strychnine poison
Strychnine	1	Poisoning; aloes and strychnine accidental
Strychnine	1	Strychnine poison accidental
Deaths of children under 5 years of age from tetanus, 5; rabies, 0		
1927		
Arsenic (rat paste)	5	Picked up package of rat poison in alley while playing
Arsenic (rat paste)	1	Eating a piece of bread with rat poison on it
Arsenic (rat paste)	4	Arsenic poisoning (rat paste) accidentally
Arsenic (rat paste)	1	Eating rat poison accidentally
Boric acid	2 days	Poisoning nursed from mother's nipple used as a wash
Horse chestnuts	3	Cholera infantum poison from eating horse chestnuts
Kerosene	1	Child drank from a can having a mixture of kerosene oil and pea juice—ptomaine
Compound solution of cresol	1	Poisoning by compound solution of cresol; accidental
Compound solution of cresol	1	Poisoning; child secured a bottle of liquid
Mercuric cyanide	1	Poisoning; mercuric cyanide eaten by a child—fireworks
Methyl salicylate	9 mo.	Methyl salicylate poisoning; accidental
Phosphorus	2	Phosphorus poisoning (rat poison); accidental
Phosphorus	2	Phosphorus poisoning (rat poison); accidental
1927—(Continued)		
Strychnine	3	Accidental strychnine poisoning
Strychnine	3	Accidental poisoning by strychnine
Strychnine	5	Accidental strychnine poison
Strychnine	1	Strychnine poison
Strychnine	3	Accidental strychnine poisoning
Strychnine	1	Probably strychnine poison (accidental); Codemene tablets
Strychnine	1	Accidental strychnine poisoning
Strychnine	3	Convulsions due to Blaud pills; strychnine poison; accidental
Strychnine	5	Accidental poisoning, strychnine
Strychnine	2	Strychnine poisoning; accidentally ate 15 Hinckle's Cascara
Strychnine	1	Accidentally ate medicine containing strychnine
Strychnine	2	Accidental strychnine poison
Strychnine	4	Accidental poisoning—pills; symptoms of strychnine
Watkin's Grippe Tablets	1	Poisoned by Watkin's Grippe Tablets; accidental
Deaths of children under 5 years of age from tetanus, 5; rabies, 0		
1928		
Arsenic (rat paste)	1	Phosphorus and arsenic poisoning; rat paste accidentally eaten
Arsenic (rat paste)	2	Phosphorus poison; rat paste
Gasoline	1	Gasoline poisoning; drank it accidentally
Kerosene	10 mo.	Kerosene drunk accidentally
Lye	2	Lye; accidental
Compound solution of cresol	1	Compound solution of cresol; accidental
Mercury (fireworks)	2	Mercury; eating Victory Snakes; fireworks
Methyl salicylate	2	Accidental overdose of methyl salicylate
Methyl salicylate	2 mo.	Methyl salicylate poisoning from oil of wintergreen to relieve colic
Morphine sulphate	10 mo.	Unknown quantity of morphine sulphate
Muriatic acid	1	Drank it at play
Phosphorus	19 mo.	Phosphorus poison
Seed of jimson weed	4	Poisoning from eating seed of jimson weed
Strychnine	2	Strychnine poisoning; Hinckle's Cascara containing strychnine
Strychnine	1	Strychnine poisoning; accidental
Strychnine	1	Strychnine poisoning; baby found bottle of nux and iron pills
Strychnine	2	Strychnine; took strychnine tablets which belonged to mother
Strychnine	4	Strychnine poison; mistake
Strychnine	1	Strychnine poisoning; child ate Blaud and strychnine tablets intended for adults
Strychnine	2	Accidental strychnine poisoning
Strychnine	3	Strychnine; took tablets by mistake
Strychnine	4	Strychnine poison; took pills for candy
Strychnine	1	Strychnine tablets; accidental
Strychnine	1	Strychnine pills taken accidentally
Strychnine	3	Strychnine poisoning; accidental
Poison (kind unknown)	3	Nature of poison unknown (sediment from maple sugar)
Poison (kind unknown)	4	Nature of poison unknown (sediment from maple sugar)
Deaths of children under 5 years of age from tetanus, 2; rabies, 0		

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2. Strychnine, the Most Important Cause of Fatal Poisoning Among Children One to Four Years of Age, Statistical Bulletin, Metropolitan Life Insurance Company 6: 1-2 (April) 1925.

Metropolitan Life Insurance Company[5] reported as follows: Of 726 deaths due to accidental poisoning, 273 (38 per cent) were in children under 5 years of age; 142 (nearly 20 per cent) in the second year of life. Definite information as to the kind of poisoning was obtained in 241 of the 273. Of these 82, or about one third, were due to strychnine, giving an average of 27 per year. Forty-six of the eighty-two deaths were shown to be due to cathartic or other tablets containing strychnine.

Table 2.—*Poisoning in New York State Exclusive of Greater New York*

	Accidental Poisoning (Int. List 177)		Strychnine Poisoning		
Year	All Ages	Five Years and Under	All Ages	Five Years and Under	Population
1926	107	26	14	14	5,395,133
1927	88	27	15	13	5,495,387
1928	102	27	13	12	5,595,020
	297	80	42	39	

Another valuable key regarding age incidence and cause of strychnine poisoning is given in a tabulation obtained from the Division of Vital Statistics of the New York State Department of Health,[4] showing the deaths in children aged 5 years and younger, recorded in international list 177 for New York State exclusive of Greater New York (table 1).

In 1926, 1927 and 1928 there were 297 deaths due to accidental poisoning listed under list 177 for all ages. Eighty of these occurred in children 5 years of age and under. Of these thirty-nine are recorded as due to strychnine and, as one other was listed under belladonna in A. B. & S. tablets, forty cases can be reported as due to tablets containing strychnine.

In twenty-one of these cases it is recorded that the children ate tablets accidentally and as several others "ate medicine containing strychnine" it is likely that they also were poisoned by tablets. Twenty of the forty children were under 2 years of age. The tablets indicated are cathartic or tonic prepared for adult use.

As we were unable to secure the figures for poisoning under 5 years of age for the United States, an attempt was made to estimate the number in table 3.[4] The figures thus obtained for children under 5 years of age are considerably higher than the figures obtained from the census bureau. This may indicate that this type of poisoning is more common in New York, but it does show that nearly all these deaths occurred in children 5 years of age and under.

The death rate does not show the true incidence of poisoning and the cases in which the children recover are not reported. Many children recover from strychnine poisoning. In the Toronto series[1] there were but three deaths in fourteen reported cases of strychnine poisoning; the same ratio would indicate a general average of about 850 such accidents in the United States death registration area each year. Our mortality is probably higher because many of our tablets contain more strychnine than the A. B. S. & C. reported as the cause of poisoning in all the Toronto cases.

It is not uncommon to have fatal convulsions occur and to have the cause remain unknown. Case 1 did not look unlike convulsions I have seen due to other causes. The fact that the child had eaten tablets by mistake three hours before had been forgotten. Such an occurrence could be overlooked and the interval between the swallowing of the tablets and the onset of convulsions would also help to obscure the cause. It would seem that many such cases of fatal poisoning due to strychnine must be overlooked; the deaths being attributed to unknown toxic agents. The deaths from this cause are probably much higher than the figures indicate.

Strychnine poisoning is one of the causes of serious convulsions in small children and should always be excluded in making the diagnosis. Routine chemical examination of the gastric and intestinal contents would lead to the diagnosis in obscure cases.

TABLETS

Strychnine and nux vomica have a wide use in sugar or chocolate coated cathartic and tonic tablets. From $\frac{1}{120}$ to $\frac{1}{60}$ grains (0.0005 to 0.001 Gm.) of strychnine sulphate is found in the formulas of numerous tablets of this kind manufactured for physicians. In time, the general public has become familiar with the trade names of these preparations and purchases them at the drug counter. The formula is printed on the label of the original package, but usually no special warning is given regarding the danger of taking several tablets, nor is there any suggestion that the tablets should be kept from children. The tablets are prepared for adults.

While tonic tablets and other medicines containing fairly large amounts of strychnine have become household remedies, cathartic tablets such as Hinckle's, A. B. & S. and A. B. S. & C. and others have a more general use, owing to the prevalence of general constipation. These sugar-coated tablets and many others containing strychnine are also dispensed without a warning on the drug envelop by physicians. The aggregate amount of strychnine or other poisons thus put in the hands of patients may be surprisingly large. The layman is not aware that the tablets contain large amounts of poison, and if he does notice strychnine in the formula he is unfamiliar with the toxic dosage. The package or bottle is left in reach of the small child. The brightly colored sugar or sweet chocolate coating of the tablets is not unlike candy; in fact, just such appearing candies are sold. They are swallowed without mastication, or otherwise the bitter taste of the various ingredients would serve as a sufficient safeguard. The interval required for the solution and absorption of the tablets makes detection and treatment of the poisoning more difficult. In fact, an attractive and potent poison trap is thus set for the small infant.

Table 3.—*Estimated Number of Deaths* from "Other Acute Accidental Poisonings (Gas Excepted)" (International List 177) and from Strychnine Poisoning in United States Death Registration Area*

	Accidental Poisoning (Int. List 177) Estimated		Strychnine Poisoning, Estimated		Deaths from Strychnine Poisoning Actually Reported, All Ages
Year	All Ages	5 Years and Under	All Ages	5 Years and Under	
1926	1,828	444	233	229	178
1927	1,342	473	263	228	179
1928	1,913	506	244	225	189

* Estimated by applying the percentages of the total number of deaths from all causes in New York State, exclusive of New York City, to the total number of deaths from all causes in the United States death registration area.

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[5] Deaths from Strychnine Poisoning Among Young Children, Statistical Bulletin, Metropolitan Life Insurance Company 11: 11-12 (Feb.) 1930.

[4] Division of Vital Statistics, New York State Department of Health: Personal communication to the author.

VALUE OF STRYCHNINE IN CATHARTIC TABLETS

The tablets most often mentioned as a cause of strychnine poisoning belong to combinations of the shotgun type. They have been so long in use by the medical profession and the public that the reason for the inclusion of some of the ingredients has been quite lost.

In an effort to get the modern view regarding the value of strychnine in cathartic tablets, letters were sent to several leading pharmacologists of this country. Opinion was about equally divided as to its value. A number were of the opinion that it had no value at all and others felt that it had some worth. Fantus [5] states that:

> Nothing may seem more logical than to add to the aloin some strychnine for the purpose of increasing the irritability of the motor neurons on which the aloin is to act; nor might it seem that anything would be more suitable to counteract the reputed tendency of aloes to produce griping than the powerful antispasmodic, belladonna. Unfortunately, by utilizing them in pill form at the same time they cannot possibly act together because of the different speed and duration of action of the three agents. Aloin is slow in action, requiring from ten to twelve hours—that is why it is generally given at bedtime. Strychnine and atropine, on the other hand, are rapidly absorbed and rapidly excreted, having but a brief duration of action. No experienced clinician would expect either of these alkaloids to act for more than four hours. By the time the aloin gets its action in, the alkaloids have long since left the system by excretion into the urine.

Fantus tested pills of aloin with and without belladonna and strychnine on thirty students and was unable to detect any essential difference. However, Yonkman's [6] experiments on dogs show that "there is a real basis for adding strychnine to pills intended to increase peristalsis, e. g., the pill of Aloin, Strychnine and Belladonna N. F."

The amount of strychnine necessary to produce sufficient action on the intestine closely approaches the toxic dose, and other cathartic tablets without strychnine and also without belladonna give very good, if not equally good results.

A more rational treatment of chronic constipation by the regulation of the diet, exercise, establishment of regular habits for bowel movements and other measures would probably give better results.

If strychnine or belladonna, both dangerous poisons, are to be used in the treatment of constipation, they should be given under the direction of a physician and probably in separate tablets or as tablet triturates. The use of strychnine in tonic tablets is more likely to have distinct value, but the added advantage of the "bitter tonic" could also be secured if these tablets were uncoated and therefore bitter. Unpleasant tasting tablets would be less likely to cause poisoning in children.

LAWS REGULATING THE SALE OF STRYCHNINE

The sale of strychnine is controlled by individual state laws rather than by federal statutes. As the United States Department of Agriculture was unable to give a digest of these regulations, it was necessary to write to each state for information. Replies were received from thirty-two states. In nearly all of these states only physicians and pharmacists can sell strychnine and it is required that a record be kept of such sales. The preparations are labeled as to composition and properties and in some states poison labels are required. These laws apply only to strychnine sold in bulk or to preparations containing amounts considered poisonous. Such laws would include strychnine tablets, $\frac{1}{3}$ grain (0.02 Gm.), but would not include strychnine in such combinations as aloin, belladonna and strychnine tablets, Hinckle's cascara, Bland compound and similar preparations.

Such tablets are exempt from restrictions because they are domestic, family or home remedies or under the somewhat vague term of proprietary remedies. Hence the practical application depends on the interpretation of these terms in the law.

The amounts of strychnine in the individual tablet is not considered poisonous. However, these tablets in bottles of 100 tablets may be sold over the counter of the drug store without a physician's prescription. In fact, the only warning is contained in the formula, which must appear on the bottle. This is usually in small type and goes unnoticed by the purchaser.

The laws controlling the sale of strychnine vary greatly in different states. The Department of Public Health of Massachusetts reports [7] that the state "Has no law prohibiting the sale of strychnine for medical purposes, and it has no law requiring proprietaries to be labeled as containing strychnine." Nevada is alone, as far as I can learn, in restricting the sale of the tablets mentioned.

In some states, dealers other than pharmacists may secure a license to sell such tablets. They may even be sold in grocery stores. While one tablet containing $\frac{1}{60}$ grain (0.001 Gm.) of strychnine would probably do no harm, the amount of strychnine contained in 100 such tablets would seem altogether too dangerous to be put in the hands of laymen. Considering the loose methods of handling poisons, it is surprising that more deaths do not occur.

PREVENTION

The loss of life from this form of poisoning is about uniform for each year. While it is not extremely high it surpasses in this state the deaths from both tetanus and rabies combined for the same age group. The deaths, mostly in small, active children, could nearly all be prevented. Most of the cases are due to the careless habit of leaving tablets within the reach of small children. Parents should be informed by publicity that such tablets can cause death. The sale and use of such compounds should be under better control.

While the elimination of strychnine from cathartic tablets would probably cause no great hardship, the suggestion that these old and time-honored formulas be abandoned would no doubt meet with active opposition from the medical profession and drug manufacturers. The latter, however, would find that the sale of other cathartic tablets would offset the loss from the combinations mentioned. Manufacturers would no doubt be glad to furnish tablets without strychnine if they were desired by the medical profession.

The formulas are now printed on the unopened bottles of strychnine tablets. The average layman does not read this formula and would be unlikely to suspect that strychnine or belladonna was present in amounts dangerous to children. The requirements of a poison label or other distinct warning would be of value if it covered a low enough range of strychnine per tablet.

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[5] Fantus, Bernard: Useful Cathartics, Chicago, American Medical Association, 1927, p. 133.

[6] Yonkman, F. F.: Effect of Strychnine on the Muscular Activity of the Small Intestine in Unanesthetized Dogs, J. Pharmacol. & Exper. Therap. 37:339 (Nov.) 1929.

[7] Personal communication to the author.

Such labels may be lost while the bottle remains in the medicine cabinet. This could be prevented by having the poison warning blown in the glass. These measures would not include tablets dispensed by physicians or those obtained on prescription.

The color and flavoring on the tablets are the factors that attract the child. Sugar-coated pills or tablets containing potent drugs are all a menace to small children. If uncoated tablets were used, the bitter taste would discourage the child from eating them. This would be a simple and effective measure. The medicinal value of the tablets would not be reduced and in tonic tablets might even be increased.

Strychnine in sugar coated tablets offers a serious hazard to small children and should be better controlled by pharmacy laws.

SUMMARY

1. Strychnine poisoning is most common in children under 5 years of age, especially those between 1 and 2 years.
2. Strychnine poisoning should be listed under a separate heading in listing causes of death.
3. Strychnine poisoning is most often caused by accidentally eating medicine prepared for adults. Colored sugar coated cathartic tablets, such as Hinckle's cascara and A. B. & S., cause most of the deaths.
4. Strychnine should be considered as a cause of fatal convulsions in infants.
5. Strychnine is not necessary in cathartic tablets.
6. The use and sale of strychnine is poorly controlled by pharmacy laws.
7. If pills and tablets containing strychnine were uncoated the resulting unpleasant taste would prevent serious accidental poisoning in children.
8. Strychnine is the most serious form of accidental drug poisoning in children under 5 years of age.

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THE USES AND LIMITATIONS OF SKIN TESTS IN ALLERGY *

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The syndromes of asthma, hay-fever, urticaria, eczema and similar conditions are no longer considered as separate clinical entities. In the light of the present conception one regards them as different manifestations of the same underlying condition. The basic pathology is the state of hypersensitiveness or allergy; and the symptoms depend on the localization of the allergic reaction. If this takes place in the bronchial tubes it is called asthma or bronchitis; if in the nose, hay-fever or hyperesthetic rhinitis; if in the skin, urticaria or eczema. It is thus apparent that there is a great tendency for this allergy or reactivity to become localized in different portions of the body.

Fortunately, it so happens that in many cases of allergy, no matter where the localized clinical symptoms occur, there is a corresponding reactivity of the skin to the same substance, as shown by the procedure of skin testing. It is hardly to be expected that the skin should be hypersensitive in every case of allergy.[1] Failure to realize this basic principle has led to many disappointments and has caused many to lose entire faith in skin tests and in the concept of allergy in general. The first skin test in the diagnosis of sensitization was performed by Blackley in 1865, using pollen in testing himself. The use of skin tests for other allergic conditions began about twenty years ago. Since that time the procedure of cutaneous testing with proteins to determine sensitization has become increasingly popular until now it has reached a point where nearly every physician is somewhat acquainted with it. As a result of this rapid spread of acquaintance with this procedure as an aid to diagnosis, many physicians and technicians have acquired a set of proteins and have begun to test patients without previous study, training or information concerning the principles involved. It is little wonder, then, that the results have been haphazard and misleading and have caused a great deal of destructive criticism in the field of allergy.

It cannot be denied that sensitization tests serve a useful purpose; neither can it be denied that they have limitations. Maytum,[2] Kern,[3] Alexander[4] and others have expressed similar views. It is my purpose in this paper to point out briefly the uses of these tests, to analyze their limitations, and to suggest possible ways of overcoming these difficulties.

Perhaps the greatest sphere of usefulness of sensitization tests is in the patients with bronchial asthma. In this group at least 50 per cent of the cases can be shown to be sensitive to substances of which most have a clinical significance. In the seasonal hay-fever cases, positive skin tests to the offending pollen may be obtained in nearly all cases; however, the majority of these offending pollens can be foretold without tests by the time of the occurrence of the symptoms and an acquaintance with the hay-fever plants in the patient's vicinity. The group of perennial hyperesthetic rhinitis cases is next in importance from the standpoint of skin testing. Approximately only one third of these can be diagnosed specifically by cutaneous tests. Eczema and urticaria, although in the majority of instances attributable to allergic causes, present great difficulty in locating the incriminating substances by skin testing. Other conditions, such as pruritus, mucous colitis, bladder disturbances, purpura, migraine and certain arthropathies, have from time to time been placed in the class of sensitization phenomena; however, in the majority of such instances the skin tests have been negative and have been of little aid.

LIMITATIONS AND DIFFICULTIES OF SKIN TESTS

The difficulties encountered in sensitization tests are attributable to many causes, which may be grouped under a few heads:

1. Skin tests may be negative to substances to which the patient is clinically sensitive.

This is perhaps the most common obstacle in diagnosis and is based on a variety of causes. The first essential in allergy work is to assure oneself that one is using active and potent materials for the tests. It is of paramount importance to know that the materials are capable of eliciting positive responses in the skin. This necessitates repeated trials of materials on patients in whom the causes of sensitization have been previously established.

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* Read before the Section on Pathology and Physiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Alexander, H. L.: Localized Allergy, M. Clin. North America 11:599 (Sept.) 1927.

[2] Maytum, C. K. Value of Skin Tests in Asthma, Proc. Staff Meet. Mayo Clinic 4:66 (Feb. 27) 1929.

[3] Kern, R. A.: Interpretation of Skin Tests in Diagnosis of Bronchial Asthma, Atlantic M. J. 30:290 (Feb.) 1927.

[4] Alexander, H. L.: Overemphasis on Skin Tests in Allergy, Tristate M. J. 1:85 (Feb.) 1929.

In many patients there will be found refractive or negative phases in skin sensitiveness. In the same individuals, repetition of the tests at other times may give definitely positive reactions.

An inherent lack of reactivity of the skin accounts for many negative reactions. This may be due to trophic changes caused by age and other degenerations but is more commonly due to an entire lack of localization of allergy in the skin although other parts of the body may be capable of allergic response.

Another common cause for such negative reactions is undoubtedly the fact that the protein extracts used for skin testing may be entirely different chemically from the proteins with which the sensitized organ comes in contact. For example, the powdered extract of strawberry protein used for making skin tests is probably not the same as the digested, absorbed and circulating strawberry allergen causing the urticaria. This fault is probably especially frequent in the case of foods.

In young and unruly children and in cases in which the skin is practically covered with eczematous lesions, cutaneous tests may be practically impossible.

2. *Skin tests may be positive to substances to which the patient is clinically negative.*

Here again the test materials may be at fault. Frequently some extracts contain materials capable of producing nonspecific reactions. This is particularly apt to occur in the case of fish proteins. Such extracts will give reactions in almost every one who is tested. Occasionally the patient's skin is so sensitive to slight mechanical or chemical irritation that positive reactions will occur with all tests.

Although a positive skin test may represent a true sensitization phenomenon it does not necessarily signify that the substance is the actual cause of the symptoms in question. Frequently the patient has more than one allergic manifestation: his chief complaint may be bronchial asthma, but a further inquiry may elicit a history of urticaria and gastro-intestinal disturbances. It would be difficult, indeed, to ascertain under such circumstances whether a certain food showing positive reactions is the cause of the asthma or the other less important allergic symptoms.

Frequently numerous positive reactions are obtained in an individual, but perhaps only one or two are the actual cause of the clinical symptoms. Sensitization to the other substances is present but the degree of clinical exposure may not be sufficient to produce symptoms. This phenomenon may also occur in individuals who apparently present no allergic symptoms of any kind. Such reactions are to be looked on as potential causes of clinical allergy: they may at any time arouse clinical manifestations provided the allergic balance of the individual is disturbed, either by immunologic changes or by excessive contact with the sensitizing substance.

3. *Negative skin tests frequently indicate an absence of allergy.*

It is perfectly possible that some of the conditions that are now considered allergic, such as bronchial asthma and urticaria, may in some instances be caused by pathologic changes other than sensitization. Such cases would, of course, be evidenced by negative skin tests. The importance of the recognition of this principle is based on the experience that many of these instances can be successfully treated by means other than allergic.

In addition to this difficulty there may be a question of diagnostic error. For example, the symptoms of bronchial asthma may be simulated to some degree by fibroid phthisis, aortic disease, cardiac asthma and other cardiac dyspneas, a foreign body in the bronchi and pneumothorax. Naturally, sensitization tests would be of no avail in such instances.

4. *Many variations exist in the relation of the skin tests to the clinical condition.*

The intensity of skin reactions does not indicate the intensity or likelihood of the presence of clinical symptoms. Strong reactions may be no more significant than weak reactions. A weak or borderline reaction may be extremely significant. Vaughan[5] analyzed the diagnostic and therapeutic results of two series of cases, one with strongly positive reactions and the other with borderline reactions. He found the results in the treatment of the latter based on the diagnosis by the skin tests practically as good as in the former group.

At times, positive reactions are delayed for two or three hours or even twenty-four hours. Such reactions as a rule have a different appearance than the immediate reactions, but they are nevertheless of clinical importance. This delayed reactivity is more apt to occur with food tests than with any other kind of tests.

Multiple reactions are common. It is important to realize that many of these multiple reactions are merely due to group reactors. For example, an individual sensitive to the timothy pollen will usually react also to the pollens of other grasses. In addition to these group reactions there may also occur sensitization to unrelated substances, of course.

The reactions to the allergens may be of secondary or no importance. Other factors of a nonspecific nature, as pointed out by Vaughan,[6] may be of more direct significance. Although clinical sensitization may exist, other complications such as infection, mechanical difficulties and neurogenic factors may be of still greater importance. To illustrate, bronchial asthma originally due to feather sensitivity may be complicated by bronchial infection. The source of sensitization may have been subsequently removed or have been obviated by an increased tolerance of the individual. However, the complicating bacterial infection may prolong the asthmatic symptoms. It is necessary to study the disease and the patient as a whole and not merely focus one's attention on the skin tests.

To correlate the results of skin tests with the cause of the allergic symptoms, considerable technical information is necessary. *A positive skin test is a clue that should stimulate a search to locate the article it represents. For this purpose it is essential to have a detailed knowledge of the composition of household articles, foods and other materials.*

HOW DIFFICULTIES ARE TO BE MET

The limitations enumerated in the process of cutaneous testing may be combated in a number of ways, depending somewhat on the particular difficulty in question. The procedures to be considered in such instances may be classified as follows:

1. *Other Methods of Tests.*—When cutaneous tests have repeatedly failed to produce positive reactions, it is still possible to elicit them by other means. The most common of these is the intracutaneous injection of liquid extracts. While such a procedure is in my opinion unsafe for routine use, it is quite safe if tests are done only with materials that have previously given a nega-

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[5] Vaughan, W. T.: Interpretation of Borderline Allergic Reactions, J. Lab. & Clin. Med. **14**: 433 (Feb.) 1929.

[6] Vaughan, W. T.: Rôle of Specific and Nonspecific Factors in Allergy and Allergic Equilibrium, J. Lab. & Clin. Med. **13**: 633 (April) 1928.

tive cutaneous test. This method with fair frequency will give positive reactions of clinical significance when the cutaneous method has failed. It must not be forgotten, however, that the intracutaneous method, as shown by Peshkin [7] and others, is productive also of frequent false positive reactions and must therefore be interpreted with extreme caution.

Quite frequently the skin will show no reactivity but the mucous membranes, especially of the conjunctiva and nose, will be quite sensitive. In such cases the conjunctival or intranasal tests are available. These tests are particularly applicable to atypical pollen cases. A solution of the pollen or a speck of dry pollen is placed in the conjunctival sac or in the nose. The allergic reaction manifests itself in the eye by marked vascular injection, swelling of the mucosa, lacrimation and itching. In the nose, rhinitis, sneezing, injection and swelling of mucous membrane with nasal obstruction constitute a positive reaction. This test may also be used with some of the other allergens.

In some cases in which the allergic manifestations are localized in the bronchi the skin, conjunctivae and nasal mucosae may be entirely nonreactive. In such instances it may be possible to elicit positive response by blowing some of the material into the patient's respiratory tract or allowing him to inhale the emanation in question. A positive reaction will consist either of a definite spasmodic cough or of an attack of bronchial asthma. This method is practical only with the inhalant materials.

Ingestion of natural foods as a means of testing will be described more fully under another heading. It has been shown by Kahn [8] and others that occasionally a subcutaneous injection of the test protein will produce a positive response when the cutaneous and intracutaneous routes have failed. Another method that has been discussed in recent years is the procedure of passive transfer. This is based on the principle that the intradermal injection of a small amount of serum from an allergic individual into a normal skin sensitizes the latter to whatever substances the former was sensitive. Although this method of indirect skin testing is not practical in many cases, it nevertheless may offer a solution in those instances in which direct testing is impossible.

2. *Clinical Corroboration and Therapeutic Trials.*—It is hardly possible to overemphasize the fact that sensitization tests are merely laboratory guides that point the way for further investigation. Clinical corroboration is the final test. To be of value, positive skin tests must correspond with the clinical facts, such as time of the appearance of symptoms and exposure to allergens. In all cases in which the laboratory tests are positive, their relation to the clinical symptoms must be proved by trial. This means, for example, to have the patient stay for a short time around horses in the case of positive skin tests to horse dander, or to eat a certain article of food in the case of a positive reaction to that food. A prompt response with the production of clinical symptoms corroborates the diagnosis of the etiology.

The foregoing procedure presupposes that the patient has intervals of freedom from symptoms. In those instances in which the symptoms are constant and also in the cases in which multiple positive tests are obtained, it is necessary first to attempt to free the patient from his clinical manifestations before exposure experiments are tried. All the materials represented by the positive skin tests are eliminated at once and then exposure, by inhalation or ingestion, is tried with one thing at a time. Thus it is usually found that only a portion of the positive tests are clinically significant.

In the event that sensitization tests are all negative or that the management based on the positive tests has not yielded expected results, it is still possible that the individual is clinically sensitive to the substances that have given negative tests. It is particularly in such instances that the methods of systematic elimination and addition should be tried. In general, two methods are available: systematic elimination of one or more articles at a time from the diet or home environment, or the complete elimination of all substances likely to cause sensitization and then the gradual addition of one or two of these articles at a time. In the case of foods, this means the elimination primarily of such foods as are the most common causes of sensitization, such as egg, wheat, milk, peas, beans and chocolate. In the case of inhalant sensitization it means the removal from the patient's environment of such things as dogs, cats, horses, feathers, hair in furniture or other articles, cotton dust and other sources of dust.

3. *Investigation of Other Factors Than Allergy.*—The most experienced of the allergists are ready to admit that other factors than allergy may play a part in the causation of symptoms ordinarily attributed to sensitization. In addition to that, diagnostic errors are possible because of the similarity in symptomatology of allergic disease and other conditions. It is only by a thorough investigation of the patient that these conditions can be discovered. This should include a detailed history with especial attention to certain differential points; a complete physical examination especially to exclude complications of the allergic disease or to diagnose conditions that may be mistaken for it; laboratory examination, particularly a Wassermann test, eosinophil count of the blood, sputum examination and urinalysis. In respiratory cases it should include also a roentgenogram of the chest and nasal sinuses. Occasionally, chemical examination of the blood or the determination of the basal metabolic rate may be of value. Above all, there should be a willingness on the part of the clinician to consider other possible causes than allergy for the particular symptoms.

It is evident, then, that a complete, comprehensive clinical experience with the allergic diseases and conditions resembling them is required to enable one to judge, interpret and follow up skin tests for allergy. For this purpose such an individual should be one who is skilled in the diagnosis of medical diseases and who has subsequently obtained experience in the diagnosis and management of allergic conditions. A technician cannot be relegated to the making of skin tests and reporting them to the referring physician with the necessary advice. With the availability of considerable periodic literature on allergy and the increasing number of allergy clinics, it is possible for practically every physician to gain first-hand knowledge about the allergic diseases and their investigation by sensitization tests.

SUMMARY

In recent years the use of protein skin tests in the etiologic diagnosis of allergic disease has become increasingly popular. Because of the inherent difficulties and limitations of these tests, much disappointment and criticism have resulted. Sensitization tests should be considered only as laboratory guides. There are many limitations to the value of skin tests in allergy. Negative skin tests do not necessarily mean an absence of sensitization to these substances. Positive tests do not necessarily indicate the cause of the clinical symptoms. Complicating factors may be more important than the allergy. The difficulties may be met chiefly by employing, when necessary, other methods of testing, such as intracutaneous, subcutaneous, conjunctival, nasal and passive transfer; by clinical trials and elimination diets; by a broad knowledge of the clinical correlation and clinical experience in allergy; and by a willingness on the part of the clinician to consider other causes than allergy.

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[7] Peshkin, M. M., and Fineman, A. H.: Asthma in Children: Comparative Study of Scratch and Intradermal Methods of Skin Testing, Am. J. Dis. Child. **34**:815 (Nov.) 1927.

[8] Kahn, I. S., and Grothaus, E. M.: Incidence and Significance of Negative Skin Tests in Pollen Asthma, J. Lab. & Clin. Med. **13**:949 (July) 1928.

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ABSTRACT OF DISCUSSION

Dr. Edward Mansur, Jefferson City, Mo.: I should like to ask whether, in the case of feather asthma, especially canary feather, the likelihood would be equally positive for sparrow feathers, the two birds being quite similar in many characteristics. I should also like to ask whether there is any feather allergy desensitization treatment available that is worth while and whether the ketogenic diet has been tried and is of any value, particularly in the treatment of allergic asthma.

Dr. S. M. Feinberg, Chicago: On the question of the relation of canary feathers and sparrow feathers, I must admit that I haven't paid any attention to sparrows, although I have had experience with canary feather sensitization. It is very rarely the case that a single canary will cause trouble in a patient who has a canary in his home. It is a matter of exposure to a much more massive dose. For instance, in the clinic I have a patient who is sensitive to canary feathers, who has asthma and who is exposed to approximately seventy-odd canaries by reason of the fact that his brother, with whom he lives, breeds the canaries. I haven't investigated or thought about investigating the question of sparrow feathers. I imagine, judging from experience with other related feathers or foods, that there would be a relationship, as shown by skin tests and probably as shown by clinical symptoms. I rarely use the feather treatment. It is much more simple to eliminate feathers in the home, to substitute other materials for pillows and covers, or merely to enclose the pillows in an impermeable, dustproof, rubberized sheeting. Occasionally, I have treated feather cases, but the results are not as successful as one is led to believe from the literature. As to the ketogenic diet, I have not experimented with that. I know of some experiments that are going on in New York on that. Apparently from what I hear some results are being obtained in bronchial asthma. Of course, a ketogenic diet means a marked reduction in certain starches. I know that many patients who have asthma and other sensitizations are sensitive to certain foods, particularly the cereals, and it seems to me not at all impossible that some of the results with the ketogenic diets are due to elimination of certain foods.

Dr. A. H. Sanford, Rochester, Minn.: I have seen a close relationship between chicken feathers and goose feathers in testing, and in the practical application I think that the patient often does not know whether he is using goose or chicken feather pillows. One patient, particularly, was sensitive to chicken feathers, to the protein of chicken meat and egg albumin, and yet the only thing he really actually was sensitive to was the chicken feathers. Unfortunately, he was in the poultry business and could not handle the chickens very well.

Dr. Edward Mansur, Jefferson City, Mo.: I have a patient with feather asthma. I tested with all the feather dust tests I could lay hands on but none were sparrow feathers. The patient reacted far more markedly to the canary feather allergy than any other. I asked her if she had canaries at home. She said she did not. I said, "How about sparrows or any other kinds of birds?" She said, "I did notice this spring when the boys cleared out my back porch and got rid of the sparrows' nest I got better." The sparrows built a nest in the porch. When that was eliminated, she noticed considerable improvement.

Clinical Notes, Suggestions and New Instruments

THE TREATMENT OF PANCREATIC FISTULA FOLLOWING RUPTURE OF PANCREAS: REPORT OF A CASE

William K. Fast, M.D., Atchison, Kan.

The statement is made by Stern[1] that traumatic pancreatitis, in which the pancreas is the only organ originally injured, is an exceedingly rare condition. The full and comprehensive review of the literature, as given by that author, is ample support to that statement. Whenever pancreatic fistula has developed following injury, the management of these cases has been perplexing and the mortality always high.

The management of one of these rare and interesting cases, wherein the pancreas was the only organ injured and in which healing was complete three weeks after the appearance of the fistula, is herewith described. The treatment used in this case was first suggested by Potter[2] for duodenal fistula. I have been unable to find that this treatment has been used in the treatment of pancreatic fistula, prior to its use in the case reported here. Potter[3] states that he has no knowledge of the treatment being applied to a definite pancreatic fistula before. The fact that the destruction of tissue from a duodenal fistula is, per se, due to the pancreatic juice makes the treatment the same.

REPORT OF CASE

L. H., a woman, aged 20, a waitress, was admitted to the Atchison Hospital at 7 p. m., March 15, 1930, thirty minutes after being injured in an automobile collision. She was first examined by Dr. Charles W. Robinson, who found that she was unconscious and bleeding profusely from a 6 inch scalp wound. She soon reacted satisfactorily, a roentgenogram of the head was negative for fracture, and the scalp wound was then sutured. She complained of general aching and soreness and a feeling of uneasiness in the epigastrium.

Nausea and vomiting developed forty-eight hours after admission, together with extreme constipation, which was accompanied by gradual abdominal distention. There was no blood in the vomitus and none in the stool secured on the second day. After gastric lavage the nausea and vomiting subsided. Small doses of morphine were then given but nothing by mouth. On the eighth day a large bowel movement resulted from an enema, after which the distention disappeared and the patient felt much better. The pulse and temperature were normal at this time.

With relief of the distention there appeared in the left hypochondriac region an elongated swelling which bulged forward beneath the left rectus muscle and extended from the left costal margin to below the umbilicus and was moderately tender on palpation. Fluctuation was present.

Complete urinalyses at this and previous examinations were normal. The blood count was: red blood cells, 3,000,000; hemoglobin, 75 per cent; white blood cells, 8,000; polymorphonuclears, 73 per cent.

At the request of Dr. Robinson, who had made a diagnosis of localized hematoma, in which I concurred, an exploratory celiotomy was done. Following a preliminary injection of one-fourth grain (0.016 Gm.) of morphine sulphate, the skin and subcutaneous tissues were infiltrated with 0.5 per cent procaine-epinephrine solution. The abdomen was opened through a high incision in the left side of the rectus. There was no free fluid in the general peritoneal cavity and the intestines were collapsed and empty. A tag of omentum was adherent to a low right rectus scar, the site of a previous appendectomy. This was divided.

There was a tense, bluish mass completely filling the lesser peritoneal cavity. This tumor had the appearance of a hemorrhagic mass, part of which may have been due to hemorrhage but resembled the grumous fluid so often seen in the lesser peritoneal cavity accompanying hemorrhagic pancreatitis. After the general peritoneal cavity had been isolated by packing, an opening was made in the gastrocolic omentum. This released 2.5 liters of thin, dark, bloody fluid which was odorless and contained flakes of fibrin and many strings of necrotic fat. With the absence of a bleeding or injured vessel on the posterior stomach wall and the release of thin, blood-tinged pancreatic fluid containing strings of necrotic fat, the diagnosis of rupture of the pancreas was certain.

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[1] Stern, E. L.: Traumatic Injuries to the Pancreas, Am. J. Surg. 8: 58-74 (Jan.) 1930.

[2] Potter, Caryl: *The Treatment of Duodenal Fistula*, J. A. M. A. 88: 899-901 (March 19) 1927.

[3] Potter, Caryl: Personal communication to the author.

Deeply situated and opposite the first lumbar vertebra there was a small necrotic mass of fibrous and fatty tissue which on removal was followed by the discharge of 2 drachms (8 cc.) of clear fluid. The prevertebral portion of the pancreas had been crushed against the anterior surface of the body of the vertebra, producing a V-shaped defect in the upper edge. Because of the extreme friability of the pancreatic tissues, suturing was abandoned after one attempt.

A one-half inch rubber tube was placed in the defect and another of like size placed as low as possible in the lesser peritoneal space. Both were brought out through the opening in the gastrocolic omentum, which was then closed tightly with interrupted sutures of catgut. Both tubes were fastened in the lower end of the incision, which was then closed in the usual manner.

The patient felt better immediately, and during the first forty-eight hours drainage was profuse and blood-tinged. After forty-eight hours it lessened, a change of dressings being necessary only four times each twenty-four hours. On the fourth day it was clear and watery, and at this time the first evidence of skin irritation appeared. On the fifth day the lower tube was removed. The clear fluid discharging from the remaining tube was alkaline in reaction and the amount in twenty-four hours was 4 ounces (120 cc.). The wound and surrounding area were kept thickly covered with zinc oxide paste and the remaining tube was removed on the tenth day. The patient had been placed on a high fat, antidiabetic diet which showed no influence on the amount of secretion being discharged. I then found that a high carbohydrate diet in the form of Karo syrup given in 2 ounce (60 cc.) doses every four hours would reduce the amount of secretion to 2 ounces in each twenty-four hours, but this did not lessen the digestion of the wound, which was pronounced within forty-eight hours after the removal of the upper tube. A raw, crater-like area surrounded the tube site and in twelve hours increased three-fourths inch in diameter.

I decided to try the treatment suggested by Potter[4] as being of value in duodenal fistula, together with the modification suggested by Warshaw and Hoffman.[5] A number 12 french catheter was inserted as far as possible into the fistula and the wound packed with gauze saturated with a 10 per cent aqueous solution of Witte's peptone. Tenth normal hydrochloric acid was instilled into the catheter at the rate of twenty drops an hour. The high carbohydrate diet was maintained.

Twenty-four hours after the institution of this treatment, digestion of the wound ceased, the crater began to fill in, and it was entirely closed fourteen days later. The catheter in the meanwhile was shortened 1 inch a day, after the tenth day. From the fourteenth to the twenty-first day the granulating wound was kept covered with beef extract paste.

Thirty days after operation the patient was discharged from the hospital with the incision entirely healed. Though the patient had been on a high carbohydrate diet and at the same time losing much of her pancreatic secretion, I was unable at any time to find sugar in the urine. On the day on which she was discharged her weight was 11 pounds (5 Kg.) under her weight on admission.

A recent report from the patient states that she is well, has regained her normal weight, and is attending to her usual duties.

Western Union Building.

FIXATION AND SUPPORT OF THE HEAD IN FRACTURES OF THE CERVICAL VERTEBRAE

Louis Le Fevre, M.D., and Samuel Jackson, M.D.
Muskegon, Mich.

Our method of fixation of the fragments and support of the head in fractures of the cervical vertebrae is submitted to the profession for trial and criticism, in the belief that it will, in the hands of others, as it has in our hands, prove more satisfactory to both the surgeon and the patient than existing methods in common use.

The device consists of two pieces of wrought iron bent into ovals, the one to fit the body curve around the neck under the chin, the other to fit around the neck and over the shoulders, the latter oval being slightly larger than the former. The two ovals of iron are placed with their long axes at right angles to each other and are held together by screws on which turnbuckles are placed, which permits of raising or lowering the upper oval, laterally, anteriorly or posteriorly. The two ovals are broken in front and behind and hinged at one of these places so as to permit of opening and closing them around the neck.

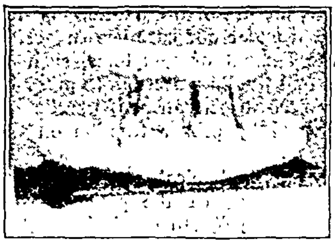

Fig. 1.—Front view of apparatus for fixation and support of the head in fractures of the cervical vertebrae.

The two iron ovals are padded heavily with felt and covered with clean gauze. The device is then ready to be placed about the neck of the patient, which is done by opening it on the hinge mentioned, and closing it when it encircles the neck. When properly in position, the lower oval rests on the shoulder girdle and conforms to the contour of the shoulders, and there is a space of about an inch all around between it and the base of the neck. The upper oval fits snugly, but not uncomfortably, just under the chin and under the occiput. Traction can then be exerted on the head by screwing the turnbuckles so as to raise the upper oval and the head with it, the weight being transmitted to the shoulder girdle through the turnbuckles and the lower oval. One or more turnbuckles can be turned more than the others, and in each case that we have treated we have found that anesthesia and numbness in the extremities due to pressure on the nerve roots rapidly disappear as the apparatus is adjusted. We have used the disappearance of pressure symptoms as a guide to the amount of screwing of the turnbuckles.

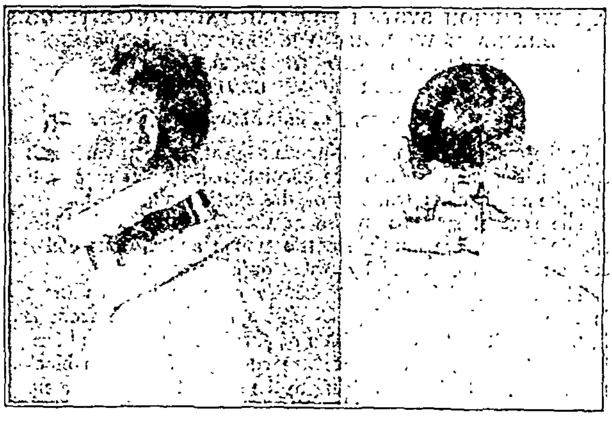

Fig. 2.—The illustration on the right shows the splint in place and the joint which is opened to admit it around the neck. On the left note the snug fit under the chin and occiput, obtained by twisting the turnbuckles between the two rings.

The advantages of this apparatus that we have noted are these:

1. Traction on the head, or the equivalent of it, the head being raised off the broken fragments of the cervical vertebrae as the screws are turned, can be closely and accurately adjusted

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[4] Potter, Caryl: The Treatment of Duodenal and Fecal Fistula, J. A. M. A. **92**: 359-363 (Feb. 2) 1929.

[5] Warshaw, David; and Hoffman, W. J.: High Intestinal Fistula, J. A. M. A. **94**: 1050-1052 (April 5) 1930.

and can be maintained in an ambulatory patient. This permits of a much shorter period of hospitalization.

2. It is more comfortable to the patient than either a plaster cast or a halter.

In each of the four cases we have treated with this device, the numbness, anesthesia and paralysis in the extremities have been rapidly relieved, a large part of it spontaneously with the application of the apparatus. Bearing in mind that concellated bone heals much more slowly than compact bone, we have left the fixation apparatus in position in each case at least eight weeks, but during the last four weeks all patients were ambulatory, and two patients during the last two weeks resumed their regular occupations of janitor and fireman, respectively.

While the nerve filaments in the spinal cord that are destroyed or severed will never regenerate, the use of the fixation apparatus in the four cases we have had under our care has suggested to us that a surprisingly large amount of symptoms, such as anesthesia, paralysis, numbness and tingling, are due to pressure and edema, which might easily become permanent if unrelieved, but which can quickly be relieved by proper traction on the head.

Credit should be given for the mechanical construction of this apparatus to Mr. Fitzgerald, one of the patients, who suffered a fracture of the body of the fourth cervical vertebra in an automobile accident, and who was moved to exert his ability by the discomfort of lying flat on his back with traction on the head exerted through a leather halter under the chin and occiput. In recognition of this, we are inclined to christen this device the Fitzgerald collar.

An effort was made to make the lower rim of the collar conform more closely to the contour of the chest wall by using a piece of flat sheet metal hammered so as to fit. This was discarded, however, as it was never as comfortable as the more clumsy appearing ring.

Although we have used this only for fractures, it suggests itself for any condition in which it is desired to remove the weight of the head from the cervical vertebrae, as in caries of the spine from tuberculosis.

287 West Western Avenue—279 West Western Avenue.

A NEW SIPHON SYSTEM FOR MAINTAINING CONTINUOUS DRAINAGE WITHOUT AIR BLOCK IN THORACIC EMPYEMAS AND IN INFECTIONS OF OTHER BODY CAVITIES

F. M. Pottenger, Jr., M.D., Monrovia, Calif.

In the maintenance of continuous aspiration from various body cavities, several obstacles are encountered. Chief among these are the mechanical features of the suction apparatus.

The several systems in use at the present time include the simple siphon, the multiple bottle siphon and various elaborate suction pumps operated by water or electricity.

The simple siphon is satisfactory only as long as the tube is free from bubbles of gas. These bubbles arise from leaks in the circuit and decomposition of purulent material and irrigating fluids. The two sources are equally effective in blocking the siphon. The bubbles rising to the highest point in the siphon break the column of fluid in the suction side with consequent loss of negative pressure. The negative pressure exerted by a siphon is equal to the height of the column on the suction side less the height of the column on the intake side.

The multiple bottle systems require great care to avoid leaks which minimize the additional suction gained by their use. Though correct in theory, their use in hospital wards has not proved satisfactory because of the constant attention required. An air leak is as effective in ruining their efficiency as is a collection of bubbles in the simple siphon.

Pumps, on the other hand, are costly to purchase, are costly to maintain and require continuous attention.

The apparatus illustrated in figure 1 is a modification of a simple siphon, so designed that all gas and air bubbles are eliminated from the circuit. *D* and *A*, standard one-liter Pyrex flasks, are placed in slots at each end of a double arm standard. *D* is filled with the irrigating solution and *A* with sterile water. *R* is a large receiver which at all times must have sufficient fluid in it to cover the end of the suction hose which connects *A* with *R*. *C* and *S* are the special rubber connections which have been described in another article.[1] To *C* the irrigating hose is connected, which may enter the cavity either separately or through a Y-tube connected with the aspiration tube 2 as shown. Tube 2 is then connected to one leg of *S* and the suction hose 3 is connected to the other leg. Each hose has its corresponding clamp.

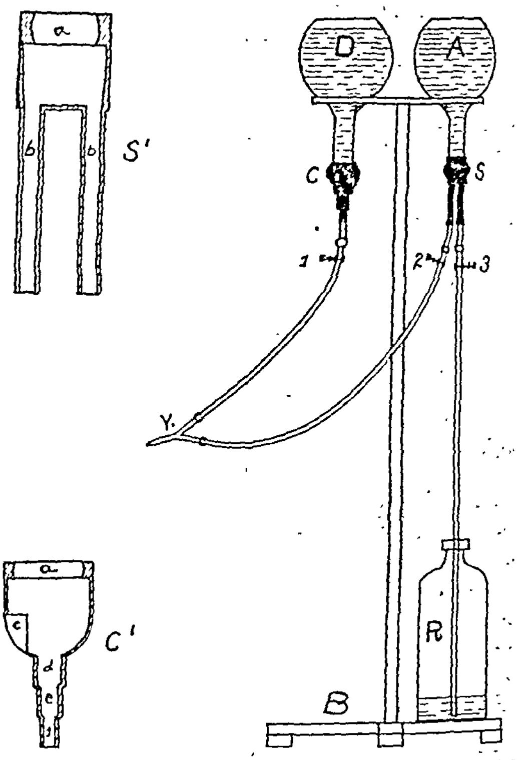

Fig. 1.—Apparatus used for chest drainage in the chest surgery service, Los Angeles County General Hospital, and cross-sections of special rubber connectors. *A*, air reservoir; *B*, two-armed standard for holding flasks; *C*, one-legged connector with valve in side wall; *C'*, same in cross-section; *a*, suction ring; *c*, valve; *d*, ⅜ inch outlet; *e*, ¼ inch outlet; *f*, ⅛ inch outlet; *D*, reservoir for irrigating solution; *R*, pus receiver; *S*, special two-legged rubber connector; *S'*, cross-section of same; *a*, suction ring; *b*, *b*, two legs; *Y*, Y-tube used to connect chest with irrigating and aspiration circuits; 1, clamp on irrigating tube of same number; 2, clamp on aspiration tube of same number; 3, clamp on suction tube of same number.

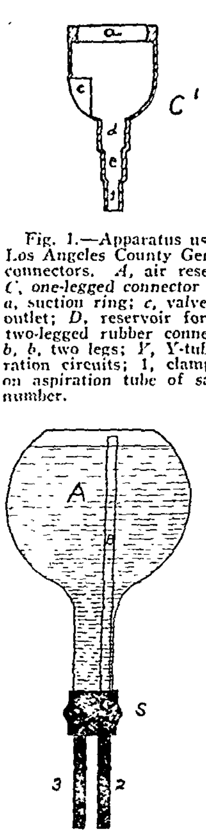

Fig. 2.—Air reservoir connected so as to prevent back flow: *A*, air receiver flask filled with water; *B*, glass tube secured into leg 2 of rubber connector and extending above the surface of fluid in *A*; *S*, special rubber connector; 2, aspirating circuit connection; 3, connector with tube to pus receiver.

This circuit operates as follows:

D, with its connection to tube 1, is a reservoir for irrigating fluid which can be used as needed. Tube 2 is the aspirating tube which removes the pus from the cavity. Tube 3 drops straight to the receiver *R*. *S*, acting as a gas separator, completes the circuit between 2 and 3 while *A* acts as a gas receiver. Any gas that may enter tube 2 has little effect on the circuit for it is removed at *S* as soon as it reaches that point, rising to the surface and displacing an equal volume of liquid. Any gas that develops in tube 3 rises to the surface of *A*, likewise displacing an equal quantity of water. In this manner a definite suction is assured at all times.

To obtain the best operating results, tube 3 should be of about three-eighths inch in diameter and of stiff noncollapsing rubber.

This circuit is so effective that, even if hose 2 is wide open, aspiration will continue as long as there is fluid in *A*. In order to study the hydrostatics of the drainage operation carefully, a manometer may be inserted at *Y*, and then one may care for one's patients more intelligently.

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[1] Pottenger, F. M., Jr.: Rubber Flask Connectors for Hypodermoclysis, Intravenous Therapy and Other Uses, J. A. M. A. 95:1503 (Nov. 15) 1930.

This apparatus, because of its simplicity of construction and manipulation, can be used for many purposes when suction is required. If 2 is extended by a glass tube (fig. 2), the efficiency is in no way impaired and the clinician can be certain that no fluid will flow back down tube 2 from the receiver, should any accident occur. With this addition it has been used at the Los Angeles County General Hospital to aspirate pus from peritonitis cases and postoperative secretions from throats.

Because of the ease with which *A* can be refilled, it is easy for a nurse to change the flask as it becomes empty. In closed aspiration circuits, such as those used in treating empyema of the thorax, aspiration can be maintained for a period of from several days to more than a week without changing the fluid in *A*.

The rubber devices, because of their simplicity of construction, durability and ease of use, add materially to the success of this method.

This apparatus has been developed and adopted in the Chest Surgery Service of the Los Angeles County General Hospital.

STAB WOUND OF THE NECK FOLLOWED BY CEREBROSPINAL FLUID LEAKAGE AND NO SPINAL CORD INJURY

H. K. Shawan, M.D., Detroit

It is unusual for stab wounds of the neck to puncture the dura —thus causing cerebrospinal fluid leakage—without damage to the spinal cord. The patient whose history is given was seen at the Receiving Hospital, Detroit.

REPORT OF CASE

History.—T. H., a white man, American, aged 30, was admitted to the hospital, June 13, 1930, having been stabbed in the left side of the neck. He thought that a portion of the blade still remained in the wound. He stated that it was difficult for him to rotate his head without pain. At no time had he complained of numbness and tingling or sharp shooting pains in the upper extremities. His bladder and bowel control was unaltered. He could walk and had no motor dysfunction in either of the upper or lower extremities.

Physical Examination.—The patient was robust, fully conscious and well oriented. His speech was normal. His gait was unimpaired. There were no signs of spinal or cerebellar ataxia. The pupils were round and equal and reacted to light and in accommodation. Extra-ocular movements were normal. The fundi were normal. There were no signs of cranial nerve palsies. The reflexes were normal throughout. There were no pathologic changes in sensation.

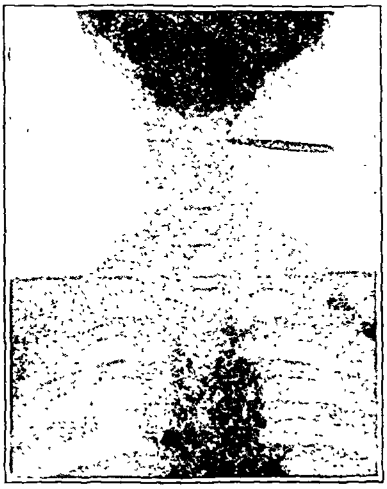

Fig. 1.—Anteroposterior view of the neck. The opaque shadow represents the knife blade, which is found piercing the vertebral column between the fifth and sixth cervical vertebral arches.

The neck was held rigid and slightly tilted to the left. He could move it in all directions, but with difficulty. A thin, blunt, hard object was felt under the skin in the middle third of the left side of the neck. The stab wound was 1 cm. in length. At examination it was noted that the dressings at the site of the lesion were wet and on watching the wound in the neck, a flow of cerebrospinal fluid was noted. This flow was not continuous but fluid trickled out every four or five minutes.

Roentgenograms of the neck showed a horizontal, long, opaque, metallic shadow, the tip of which had pierced the space between the fifth and the sixth vertebral pedicles on the left side (figs. 1 and 2).

Operation.—Under local anesthesia, a short skin-plane incision was made over the base of the retained foreign body, parallel to and just above the stab wound. It was an easy matter to remove the blade through this operative field. The broken off knife blade measured 5.5 by 1 cm. The skin incision was closed without drainage.

Postoperative Course.—His convalescence was uneventful. The cerebrospinal fluid leakage stopped immediately. There was no fever and the blood counts were normal. The patient was discharged in three days. Examination four months later showed complete recovery.

COMMENT

In the majority of stab wounds of the dura-arachnoid the spinal cord symptoms and signs are outstanding. The cord may be partially severed, it may become edematous because of injury, or some of the spinal arteries may be sectioned, with consequent subarachnoid hemorrhage.[1]

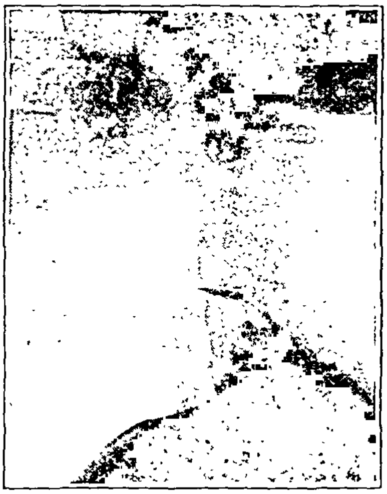

Fig. 2.—Lateral view of the neck with the knife blade in close proximity to the interpedicular space. It is suggested that the dura-arachnoid is pierced at this situation.

It is unusual to have cerebrospinal leakage without symptoms of spinal cord damage. The earliest case is probably the one described in 1743 by Cuvillier.[2] His patient walked 80 miles after a stab wound in the back. Soon a tumescence appeared which on incision showed serosanguineous fluid, presumably a mixture of blood and spinal fluid. The possibility of infection with cerebrospinal fluid leakage after stab wounds of the spinal canal is imminent. Such a case was recently reported by Mavrodin and Tzovaru.[3]

In the case reported here there was a stab wound puncturing the spinal membranes. For several days there was a leakage of cerebrospinal fluid. No early or late spinal cord interference occurred. No meningitis developed. There was a complete recovery after the extraction of the knife blade.

David Whitney Building.

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1. Chipault, A.: Etudes de chirurgie medullaire, Paris, 1893. Frazier, C. H.: Surgery of the Spine and Spinal Cord, New York, D. Appleton & Co., 1918; Rand, C. W., and Patterson, G. H.: Stab Wounds of the Spinal Cord, Surg. Gynec. Obst. **48:** 652-661 (May) 1929.

2. Cuvillier, quoted by Chipault (footnote 1).

3. Mavrodin, D., and Tzovaru, S.: Case of Wound on the Side of the Neck with Isolated Lesions of the Spinal Meninges, Spinal Fistula with Subsequent Meningitis, Spitalul **48:** 17-20 (Jan.) 1928.

The Peculiar Distinction of Hippocrates.—To Hippocrates belongs the peculiar distinction that he was the first definitely to discard the idea that disease was due to the gods or other fantastic imaginings; he dissociated medicine for the first time from religion and philosophy. This alone would have been sufficient to insure his immortality, but he went further, and by crystallizing the loose knowledge of his predecessors and contemporaries into systematic science, he became the master to whom modern medicine owes the art of clinical inspection and observation. So keen were Hippocrates' power of observation, and so clear are the written descriptions ascribed to him of such diseases as tuberculosis, puerperal (childbirth) convulsions, and epilepsy that, with a few changes and additions, they might be incorporated entire in any modern textbook of medicine.—Oliver, W. W.: Stalkers of Pestilence, New York, Paul B. Hoeber, Inc., 1930.

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SATURDAY, NOVEMBER 29, 1930

THE ETIOLOGY OF GINGER PARALYSIS

Within the past year a peculiar form of paralysis has afflicted many persons, particularly throughout some of the Midwestern or Southwestern states. Government experts have asserted confidently that the numbers of the patients run into the thousands, thus exhibiting what may reasonably be termed epidemic proportions. Evidence has rapidly accumulated indicating that the unique malady is closely associated with the drinking of fluidextract of ginger. The latter has been sold extensively for many years, since the introduction of the Volstead Act, for beverage purposes, because of a ruling of the Prohibition Bureau to the effect that the official fluidextract of ginger is a nonpotable beverage, thus removing the restriction from its sale. The disease that has come to be designated as "ginger paralysis" could scarcely have been caused by the familiar U. S. P. fluidextract; otherwise the morbidity would have been much greater and the incidence of the paralysis far more widespread. Many of the victims freely admitted having used fluidextract of ginger for years without effects other than those attributable to its alcohol content; hence the conclusion that an adulterated and poisoned product was being circulated for sale last winter.

An investigation was undertaken by the United States Public Health Service[1] as soon as the seriousness of the situation became manifest. Many puzzling features attended the early clinical examinations. The quantity of the ginger fluid consumed was apparently not the determining factor in the seriousness of the symptoms. A single drink is known to have produced essentially the same result as that following prolonged use of the product over a period of some days. Transitory alcoholic intoxication often occurred, as might be expected; but the really untoward symptoms were delayed, usually about ten days. The victims presented bilateral wrist drop and foot drop of varying degrees of severity. The picture became that of a flaccid paralysis for the most part of the distal muscles of the lower and upper extremities, pointing to involvement of the lower motor neurons localized in the lower lumbar and lower cervical regions of the cord. The unsuspected presence of arsenic or lead and other heavy metals in the beverage was soon ruled out by careful chemical examination of samples of the offending product. Phenol compounds were found to be present.

The familiar phenols, such as carbolic acid, are prompt in their toxic action, in contrast to the delay in the paralysis produced in the ginger victims. Confusion was added by the observation that, whereas rabbits and calves responded to the dangerous fluidextracts somewhat as the human victims did, monkeys seemed to be immune. The effective investigations of Smith, Elvove and their co-workers[1] in the Public Health Service seem to have fixed responsibility for the unusual human disease on tricresyl phosphate, and more specifically on the triorthocresyl isomer. The pharmacology of this unsuspected product was not known until the present occasion for its investigation. The systemic action of ordinary cresols is prompt; that of the cresyl phosphate is slow. It is assumed by the government pharmacologists to be absorbed as such, rather than hydrolyzed in the alimentary tract of man. It is further postulated that the substance has a special selective affinity for nervous tissue, where it may be disintegrated in situ. Such behavior would explain the long latent period in the onset of the paralysis and the persistence of the toxic action.

The details of the mode of action need to be worked out further, but the complicity of the triorthocresyl phosphate can no longer be doubted. Investigation and inquiry have revealed, by way of confirmation, that an adulterated ginger prepared by addition of technical tricresyl phosphate to U. S. P. fluidextract of ginger made to approximate the composition of the suspected toxic gingers behaved like them in pharmacologic tests on susceptible animals. The precise reason for including triorthocresyl phosphate, which is now revealed as a highly specific poison, in commercial ginger extracts is not known. Smith and his colleagues regard it as reasonable to suppose that it was included there by unscrupulous producers on account of its physical or other properties that make it difficult to distinguish from the normal ginger constituents. Only a chemist of some ability, the government report adds, could have thought of this; and had there been anything known about the pharmacologic action of the substance and the possible dire consequences, it is probable that it would never have been used and the disasters would never have happened. The elucidating research illustrates what may be expected from the newly organized National Institute of Health, where the investigation of ginger paralysis has been prosecuted. Smith and

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[1] Smith, M. I.; Elvove, E., and others: Pharmacological and Chemical Studies of the Cause of So-Called Ginger Paralysis: A Preliminary Report, Pub. Health Rep. **45**: 1703 (July 25) 1930. Smith, M. I.; Elvove, E., and Frazier, W. H.: The Pharmacological Action of Certain Phenol Esters, with Special Reference to the Etiology, Second Report, ibid. **45**: 2509 (Oct. 17) 1930.

Elvove have expressed a wonder whether there are not many other organic compounds of great pharmacologic interest, perhaps some with therapeutic possibilities, awaiting the attention of the pharmacologist. This question may well form the basis for part of the program of the national institute. To unscrupulous manufacturers the study of the unexpected menace attending unwarranted adulteration of foods and drugs should be a lesson of far greater impressiveness than the mere fear of convictions and fines. The producers of the noxious ginger extracts have unwittingly become potential murderers rather than merely criminal purveyors of adulterated products.

THE DEATH OF PROFESSOR EIJKMAN

The death, at the age of 72, of Dr. Christiaan Eijkman, professor of hygiene in the University of Utrecht and a Nobel prize laureate of recent years, deserves more than passing notice. He has long enjoyed the distinction of being the scientist who first produced experimentally a disease of dietary origin. His researches paved the way for the discovery of the vitamins and much of the investigation of recent times in the field of nutrition. Eijkman's pioneer studies related in particular to the long puzzling malady of the Far East known as beriberi. This disease, a peripheral neuritis resulting in paralysis, had been known from remote times. The popular belief was that it must be due primarily to an infection, though there were physicians who assumed that the disorder might be referred to faulty diet. In 1884, Admiral Takaki of the Japanese navy became converted to the idea that foods richer in protein than those commonly consumed by the sailors, who subsisted largely on rice and were prone to develop beriberi, might bring relief. He made a crucial test. A Japanese training ship with 276 men on board set out for a nine months' cruise. During this time 169 cases of beriberi developed, with 25 deaths. Soon thereafter another training ship with a similar crew started over the same route, but its diet was radically changed. The most marked departure in the regimen was to reduce the quantity of rice and include a fairly liberal supply of milk and meat. The change, a reviewer[1] writes, was nothing short of miraculous. During ten months only fourteen cases of beriberi developed, and every one of these men had refused to adopt the modified diet. Beriberi thus came to be looked on as a protein deficiency disorder.

Years later, about 1896, a chance observation by Eijkman turned attention to other possibilities. This Dutch physician was stationed at that time in the Dutch settlement in Java. He noted a peculiar outbreak of disease among fowls that were being fed cooked rice discarded from the kitchen of the hospital to which he was attached. The symptoms were characteristically like those of natives who developed beriberi and the malady was designated by Eijkman as polyneuritis gallinarum. This astute observer promptly followed up these earlier observations by an investigation that showed that a diet of polished rice always induced polyneuritis in birds, and that it could be averted or cured by the use of unmilled rice or rice polishings in the food. For the first time, Harrow writes, physicians had a readily available means of studying a disease that had wrought havoc to vast populations. A new era in experimentation was begun.

It matters little that Eijkman failed to identify correctly the substance in rice polish and other food materials that prevents experimental polyneuritis. The essential feature of his researches is the application of new methods of study and the revision of scientific points of view. The soil that Eijkman prepared lay fallow for more than a decade before noteworthy progress followed. Funk, in particular, took up the question of the nature of the active principle—the protective or curative agent that averts beriberi—in 1911. From this has developed the present-day knowledge of the vitamins.

REPRODUCTION AND EXCESS PROTEIN IN THE DIET

The question of the most favorable amount of protein in the diet is not new. In the first few years of the present century the advocates of a liberal protein allowance, largely in Germany, were opposed by the proponents of the strict limitation of protein, the chief of whom were Chittenden in this country and Hindhede in Denmark. When, on the other hand, through the classic studies of Fischer, Kossel, Osborne and Mendel, and Hopkins the importance of quality of protein was emphasized, the question of quantity was lost sight of temporarily. However, the present decade has seen a revival of interest among students of nutrition in the effects of high concentrations of dietary protein on the organism. The problem has been attacked both in the laboratory with experimental animals and in the clinic, and vast amounts of data have accumulated. Since the kidney is the organ primarily involved in the excretion of the products of the metabolism of protein, the attention of investigators in this field has naturally been focused on the possibility of demonstrating a nephrotoxic action of excessive concentrations of this foodstuff. In some of the studies a more definite answer has been sought by removing one kidney in order to increase the burden on the remaining one. However, in view of the apparent simplicity of the thesis, the results have been surprisingly inconclusive. After studying the available evidence, two reviewers[1] have come to the none too sure conclusion that most of the data favor the view that high levels of protein in the diet do not exert an unfavorable influence on the kidney.

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[1] Harrow, Benjamin: Vitamines, Essential Food Factors, New York, E. P. Dutton & Co., 1921.

[1] Mitchell, H. H.: Biochemistry of the Amino Acids, 1929, p. 550 et seq. Du Bois, E. F.: J. Am. Diet. A. 4: 53, 1928.

In spite of the importance of the kidney in protein metabolism, it is possible that other body functions may be altered by unduly large amounts of dietary protein. In a recent report by Parsons, Smith, Moise and Mendel[2] are given the results of an extensive investigation of the influence of protein-rich rations on various phases of the reproductive cycle. The rations, which contained 16, 40 and 70 per cent of protein, were otherwise complete and some of the animals (albino rats) were subjected to unilateral nephrectomy. It was early observed that high concentrations of protein had no deleterious effect on ovulation, the estrous cycle being regular even in the animals with only one kidney. Gestation likewise proceeded without toxic symptoms even on the extreme rations employed. Lactation, however, was not even approximately successful on the diet richest in protein until further additions of vitamin-containing materials were made. Thus it appears that, of the various phases of the reproductive cycle, only lactation is adversely affected by the combination of greatly heightened protein metabolism and reduction in renal tissue.

Significant observations on the kidneys of mother and offspring were made also by Parsons and her co-workers. The average degree of enlargement of the remaining kidney after unilateral nephrectomy and after sixty days on the protein-rich diet was 106 per cent in those females which had no young, 111 per cent in those in which only gestation was permitted, and 154 per cent in the group that experienced both gestation and lactation. This last response of the kidney to high concentration of protein is notably larger than that occurring in male rats under similar dietary conditions and points to a definite effect of milk production on those processes in the body with which renal function is associated. Twelve animals with one kidney were given the protein-rich diet for periods ranging from 106 to 184 days, during which one or more litters of young were reared. Histologic examination of the remaining kidney at necropsy showed severe lesions in only three cases. The kidneys of the young of a group of animals consuming the protein-rich ration were compared with those of the offspring of another group on the low-protein food before the young had begun to eat the mother's ration. The ratio of kidney weight to body weight of the first group was significantly greater than that of the second group. It seems, therefore, that the substances which influence the size of the kidney during heightened protein metabolism are transmitted through the mother's milk.

From these studies it appears that not until the maternal organism feels the stress of the elaboration of milk do the circumstances surrounding the high level of protein metabolism exert an unfavorable influence. In spite of the augmented degree of nitrogen metabolism, the reduction of functioning renal tissue and the stress of reproduction, the kidneys show relatively little damage. The enlargement of the maternal kidney as well as that of the kidneys of the suckling young can be looked on as a result of the physiologic response to increased functional demands. These studies emphasize anew the remarkable factor of safety possessed by the renal excretory apparatus and also the intensity and the widespread nature of the demands for lactation.

Current Comment

THE SYMPTOMS OF VITAMIN A DEFICIENCY

Most of the symptoms of so-called dietary deficiencies developed by a shortage of vitamins in the food have been established by experiments on animals. To what extent they are actually represented in human disorders is only slowly becoming known. In the case of man, defects in nutrition are likely to exhibit simultaneously multiple symptoms that have diverse causes, so that it becomes difficult to disentangle the manifold etiologic factors in the disease syndrome. The investigator who deals with experimental animals is able to select his dietary conditions so as to exclude many of the simultaneous variables that might modify the result. This helps to explain why his observations are not always matched in the categories of human disorder. There is little doubt regarding the importance of the fat-soluble vitamin A in human nutrition; yet the most conspicuous of the manifestations of vitamin A deficiency in rats, on which the pioneer investigations have been conducted, is the characteristic ophthalmia, a phenomenon only rarely recorded for man. It is significant, therefore, to learn from observations of Tilden and Miller[1] at the Rockefeller Institute for Medical Research, New York, what the deficiency symptoms are that monkeys tend to manifest when vitamin A is missing from their diet. The first symptom of illness noted in the monkeys receiving the low vitamin A ration was loss of weight, which was followed sooner or later by loss of appetite and finally by colitis and death. There was no xerophthalmia, sinusitis or mastoiditis, and abscesses of the tongue were not found in any of the animals. Keratomalacia and hemeralopia in human beings have been attributed to deficiency of the A factor in the diet. Other conditions in animals or man that have been attributed to this cause are diarrhea, respiratory disturbances, urolithiasis, calcification of kidney epithelium, edema and gastric carcinomas. With regard to the signs of depletion of vitamin A reserves in monkeys, Tilden and Miller say that in one respect, at least, the response of the monkey is the same as that of the rat and the guinea-pig; namely, in the epithelial metaplasia which manifests itself particularly in the respiratory and genito-urinary tracts. The New York investigators remark that the total absence of eye lesions in the monkeys, and of infections of the sinuses, middle ear and glands of the tongue, as compared with the rather frequent occurrence of these signs in rats, is of especial interest. A similar observation has been made by Wolbach and Howe with respect to the guinea-pig. In view of the delicacy of the monkey, as compared with the rat, however, and the possibility that the monkey succumbs to the intestinal condition before the development of other symptoms, Tilden and Miller are not altogether sure that the monkey may not, under certain conditions, manifest the nutritional failure in other ways. Perhaps in view of the report just reviewed, more attention should be centered on a possible interrelation between alimentary symptoms and vitamin A deficiency in man.

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[2] Parsons, Helen T.; Smith, A. H.; Moise, T. S., and Mendel, L. B.: Diet and Tissue Growth, Arch. Path. **10**: 1 (July) 1930.

[1] Tilden, E. B., and Miller, E. G., Jr.: The Response of the Monkey (Macacus Rhesus) to Withdrawal of Vitamin A from the Diet, J. Nutrition **3**: 121 (Sept.) 1930.

RECENT STUDIES IN UNDULANT FEVER

Hasseltine[1] of the United States Public Health Service has recently summarized the results of his field investigations of undulant fever in the United States. The disease was recognized in every state of the Union during 1929. Epidemiologic data indicate that the cases of undulant fever as they occur in this country can be divided into three main groups: the milk group, without significant exposure to live stock or animal carcasses (mostly urban cases); the farm group, in which are included the rural cases having direct contact with live stock, and the meat group, consisting of urban cases having direct contact with live stock or carcasses. In regard to the question as to the relative pathogenicity of the types of *Brucella* organisms which may be found in raw milk, Hasseltine says: "It makes no difference whether a patient receives a bovine, porcine or caprine type of *Brucella* through the raw milk he consumes; the fact that he contracts a preventable disease through such channels is what makes the matter of first importance." Hasseltine further says: "In cities having only a portion of their milk supply pasteurized, undulant fever has picked out the user of raw milk with as much precision as smallpox picks out the unvaccinated." Contact with infected animals, particularly with infected hogs, frequently results in infection; such cases are usually severe and sometimes fatal. The application of the agglutination test to cattle, and the segregation and ultimate elimination of those reacting positively, appears to be the logical method for eliminating the infection at its source. It is probable that only a few of the infected cows will escape detection by the agglutination test, and these will probably be found on retests of the herd. Hasseltine states that, to the health official, the greatest weakness of the procedure of examination of live stock and the elimination of infected animals is the length of time it will take to accomplish this gigantic task. For the protection of the health of the people it is necessary to rely on such measures as education of those whose occupation brings them in direct contact with infected animals, and on pasteurization to prevent milk-borne cases. It is further emphasized that examination of milk by ordinary bacteriologic methods does not reveal the presence of *Brucella* therein, as these organisms grow too slowly to appear visible in twenty-four hours. Therefore, a milk that has an exceedingly low bacterial count may be heavily contaminated with the organisms of undulant fever. Since the organism has its source in the cow's udder, no amount of cleanliness, inspection or sterilization of utensils will be of any account unless the cow is known to be free from *Brucella* infection. Hasseltine's studies have led him to the conclusion that the pasteurization of milk renders it safe and takes care not only of undulant fever but of all other communicable diseases transmitted by milk.

CARDIAC FIBROSES

In the St. Cyres lecture, Dr. John Cowan[1] recognized three sources of fibrosis of the heart: myocarditis, ischemic necrosis and syphilis. Myocarditis is found not only as a result of rheumatic infection but also, though less commonly, as a complication of many acute infections: pneumonia, pleurisy, diphtheria, sepsis, smallpox, typhoid, scarlatina and blackwater fever. Syphilis may affect the heart muscle through the formation of gummas, though this is rare. The common attack on the heart muscle is through disease of the coronary arteries with resulting ischemia. The damage resulting from occlusion of a coronary artery depends on the rapidity with which it is occluded, a slower process giving better opportunity for the development of anastomotic circulation. Angina pectoris is regarded as the symptom of an ischemic heart, the evidence of a local anoxemia. The doctrine of Wenckebach that "in angina pectoris we should not look for a bad heart muscle; the part of the aorta adjoining the heart is the seat or the origin of the pain"[2] is ignored. Dr. Cowan accepts the theory of an ischemic origin of the pain on the experimental evidence of MacWilliam[3] and the clinical and necropsy analysis of Keefer and Resnik.[4] Under conditions of rest and tranquillity it is supposed that the heart muscle may receive an adequate supply of oxygen, but granted exertion or a slight rise in blood pressure from excitement or other cause and the supply of oxygen becomes deficient, the pain of angina is the result. In diagnosis the electrocardiogram is of value only if the fibrosis happens to strike the bundle branches; in other situations it will do nothing to deform the electrocardiographic picture. In the former case some clinical evidence of heart block may be expected and, indeed, in almost all cases of myocardial fibroses some changes in heart sounds or in the outline of the heart are to be expected. The prognosis is difficult; although early death is the rule, some patients recover a degree of health and activity. Dr. Cowan mentions one patient who carried a full heart block for thirty years until his death at the age of 70. In general the prognosis will depend on the cause of the ischemia or inflammatory fibrosis and its amenability to treatment. Syphilitic lesions may improve notably under antisyphilitic treatment, while atheromatous lesions cannot be dissipated, though the progress of the sclerosis

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[1] Hasseltine, H. E.: Recent Progress in Studies of Undulant Fever, Pub. Health Rep. **45**: 1660 (July 18) 1930.

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[1] Cowan, John: The Fibroses of the Heart, Lancet **2**: 1 (July 5) 1930

[2] Wenckebach, K. F.: Angina Pectoris, Bull. Battle Creek Sanit. **19**: 65 (March 24) 1924.

[3] MacWilliam, J. A., and Webster, W. J.: Brit. M. J. **1**: 53 (Jan. 13) 1923.

[4] Keefer, C. S., and Resnik, W. H.: Angina Pectoris, Arch. Int. Med. **41**: 769 (June) 1928.

may be delayed. The final issue of acute myocardial disease, whether inflammatory or ischemic, depends on the treatment of the initial attack. Dr. Cowan keeps his rheumatic patients in bed for two months after the temperature and pulse rate have returned to normal. Similarly, rest is indicated after an infarct and must be absolute, even though it is necessary to employ sedatives to this end. Rest again in cases of insidious origin will delay critical effort and give time for the development of anastomotic circulation. When exercise is resumed it must be kept well within the diminished capacity of the damaged heart.

Association News

ABSTRACT OF MINUTES OF MEETING OF BOARD OF TRUSTEES HELD IN CHICAGO, NOV. 13 AND 14, 1930

The Board of Trustees met in Chicago on Thursday and Friday, Nov. 13 and 14, 1930.

MEMORIAL FOR PHYSICIANS WHO SERVED IN THE WORLD WAR

A committee was appointed, composed of Drs. Olin West, Morris Fishbein and William Gerry Morgan, to institute a campaign to raise $10,000 by popular subscription among the members of the Association, with the assistance of the state societies, to provide in Pershing Hall—America's Memorial to the Commander-in-Chief, Officers and Men of the American Expeditionary Forces, which is under construction at 49 Rue Pierre-Charron, Paris, by the American Legion Building Paris, Inc.—a suitable memorial to the officers and men of the Medical Corps who served and gave their lives in the World War.

BUREAU OF ECONOMICS

Applications for the position of Director of the Bureau of Economics were considered, but definite action was postponed pending further consideration.

DUTIES OF COMMITTEE ON POISONOUS GASES ENLARGED

The duties of the Committee on Poisonous Gases were enlarged to include any hazard to health or life from poisonous substances developed through modern activity.

COOPERATION BETWEEN FEDERAL AND STATE GOVERNMENTS IN PUBLIC HEALTH ACTIVITIES

Consideration was given to the resolution passed by the House of Delegates providing that the Board of Trustees initiate, as speedily as practicable, a movement to enlist every state medical association and county medical society, and every member of the medical profession in a movement to carry into effect the policy of the American Medical Association with respect to cooperation between federal and state governments in public health activities. The Board feels that everything possible is now being done along these lines.

FIRE IN PROPERTY OWNED BY ASSOCIATION

A report was received concerning two fires which had recently broken out in buildings east of the headquarters office that are owned by the Association. One of these buildings—that adjoining the headquarters—has been remodeled in accordance with authorization from the Board; an opening has been made into it from the headquarters, and it is being used to house one department and for storage purposes. The Board referred to a committee comprising the General Manager, the Business Manager and the local Trustee the matter of reconditioning or razing the other buildings that have been damaged by fire.

CHAIRMAN OF LOCAL COMMITTEE ON ARRANGEMENTS

The Board confirmed the nomination by the Philadelphia County Medical Society of Dr. George C. Yeager as chairman of the Local Committee on Arrangements for the Philadelphia session of the Association in 1931.

ACKNOWLEDGMENT OF GIFT TO HYGEIA

The appreciation of the Board was expressed to a physician who has contributed more than $5,000 to the Association within the last three years for subscriptions to *Hygeia,* mainly for libraries, and who prefers not to have his name revealed.

APPROPRIATION FOR INSPECTION OF HOSPITALS FOR THE CARE OF MENTAL PATIENTS

An appropriation of $20,000 was made available for the Council on Medical Education and Hospitals for an inspection of hospitals devoted to the care of mental patients, provided for in the resolution adopted by the House of Delegates at the Detroit session.

COMMITTEE ENLARGED

The committee appointed to cooperate with federal departments concerning regulations under the Volstead Act was enlarged by the addition of Dr. J. H. J. Upham of Columbus, Ohio, and Dr. Henry A. Christian of Boston.

The chairman of the committee, Dr. William H. Mayer of Pittsburgh, and the executive secretary of the Bureau of Legal Medicine and Legislation, Dr. W. C. Woodward, appeared before the Committee on Law Observance and Enforcement, November 12, and protested against the interference by legislation with the prescribing by qualified physicians of agents that they conscientiously believe to be useful in the practice of medicine.

RESIGNATION OF DR. DILLEHUNT FROM COUNCIL ON PHYSICAL THERAPY

The Board accepted the resignation of Dr. Richard B. Dillehunt of Portland, Ore., who asked to be relieved because of his inability to give to the affairs of the Council on Physical Therapy the attention they require, and to attend the meetings of the Council, owing to the great distance to Chicago.

DANGERS INVOLVED IN THE INDISCRIMINATE USE OF ACETANILID AND BARBITAL

A report from the Council on Pharmacy and Chemistry, recommending that the public be educated concerning the dangers involved in the indiscriminate use of acetanilid, especially of acetanilid-containing nostrums, and barbital was adopted.

REPORT OF CHAIRMAN OF COMMITTEE ON ENTERTAINMENT AT ANNUAL SESSIONS

The report of Dr. Austin A. Hayden, chairman of the Committee on Entertainment at Annual Sessions, covering tentative arrangements for the President's reception on Thursday evening of the week of meeting, as well as for entertainment in the form of supper-dancing and cards to be available to the visiting physicians and their guests at a nominal fee throughout the week, was adopted and placed on file.

MISCELLANEOUS BUSINESS

Other matters were given careful deliberation; some were referred to committees, and action on some was postponed.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, 10:30 on Thursday and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 1.	The Prevention of Some of the Common Diseases of the Skin.
December 2.	Cancer Control — A Public Health Problem.
December 4.	The Proposed Home for One-Legged Canary Birds.
December 6.	The Problem of Sweets for Children.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

December 1.	How's Your Digestion?
December 2.	Personal Preferences.
December 3.	Commendable Cooks.
December 4.	More About Cooks.
December 5.	Overconfidence.
December 6.	The Pace That Kills.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Licenses Revoked.—At a meeting of the State Medical Board of the Arkansas Medical Society, November 11, the license to practice medicine in the state of Dr. Abraham M. Goldstandt, Columbus, Ohio, was revoked on the grounds that the credentials on which this certificate had been issued were revoked in Ohio, April 1, for grossly unprofessional or dishonest conduct. The license of Dr. William W. Hornsby, North Little Rock, was also revoked at this meeting. Dr. Hornsby had been convicted and sent to prison for violating the narcotic act.

Society News.—The First Councilor District and Northeast Arkansas Medical Society was entertained by the Craighead-Poinsett County Medical Society, at Tyronza, October 15; among other speakers were Drs. William R. Bethea, Memphis, Tenn., who spoke on "X-Rays as a Benefit to the General Practitioner," and Jones H. Lamb, Paragould, "Methods of Treating Arterial Hypertension."——The Arkansas County Medical Society was addressed at DeWitt, October 14, by Drs. Milton C. John, Stuttgart, on icterus neonatorum; Robert H. Whitehead, infantile paralysis, and C. W. Rasco, diphtheria.——Dr. George B. Fletcher discussed the outstanding symptoms of mental disease before a recent meeting of the Hot Springs County Medical Society at Malvern.——The Independence County Medical Society was addressed at Batesville, October 13, by Drs. Thomas N. Rodman on "Cardiac Arrhythmias"; John M. Hooper, "Carcinoma of the Gallbladder"; O. S. Woods, Salem, "Tumor of the Mediastinum," and Frank A. Gray, "Diagnosis and Treatment of Carcinoma of the Uterine Cervix."

CALIFORNIA

Hospital News.—The Ernest V. Cowell Memorial Hospital was dedicated, October 21, at the University of California, Berkeley; the dedication was a part of the ceremonies in connection with the inauguration of Robert Gordon Sproul as president of the university.

Society News.—Dr. Arthur Elmer Belt presented a motion picture on "The Habits and Urinary Tract of the Cetaceans" before the Los Angeles Surgical Society, November 14; Dr. David G. Ghrist, Rochester, Minn., spoke on "The Present Status of Therapy in Chronic Rheumatic Diseases with Special Reference to Surgical Procedures."——The San Diego County Medical Society was addressed, November 12, by Dr. Howard L. Updegraff, Hollywood, on "Methods of Reconstructive Surgery."——At the eighty-third semiannual meeting of the Southern California Medical Association in Long Beach, October 31-November 1, the following officers were elected for the ensuing year: Drs. Fred B. Clarke, Long Beach, president; William H. Barrow, San Diego, and Philip H. Stephens, Los Angeles, vice presidents, and Carl R. Howson, Los Angeles, secretary. The next annual meeting will be held at Coronado in April, 1931.——The Alameda County Medical Association was addressed in Oakland, November 17, by Drs. William W. Cross, Jr., Oakland, on urinary tract obstruction; Charles L. McVey, on syphilis of the mouth, and Harry J. Templeton and Charles J. Lunsford, on "Sporotrichosis in California."——Rear Admiral Edward R. Stitt, U. S. Navy, addressed the Los Angeles County Medical Society, November 20, on annual health examinations in the navy during the past twenty years.——The Clinical and Pathological Society was addressed in Los Angeles, November 25, among others, by Dr. Charles C. Browning on "Extensive Emphysema Throughout the Muscles and Subcutaneous Condition of the Chest, Secondary to Pathologic Fracture of the Rib," and Dr. Wilbur B. Parker, "Intravenous Pyleography by Means of Uroselectan."——Drs. Hans E. Schiffbauer and John W. Nevius addressed the Trudeau Society, November 25, on "Resection of First Rib Anteriorly with Phrenic Exeresis" and "Problems in Artificial Pneumothorax," respectively.——Among others, Drs. Eliot Alden, Los Angeles, and Douglas Quick, New York, addressed the Hollywood Academy of Medicine, December 3, on "Present Status of Cancer of the Breast" and "Intra-Oral Malignancies—Diagnosis and Treatment," respectively.

DELAWARE

Health at Wilmington.—Telegraphic reports from seventy-eight cities with a total population of thirty-five million to the U. S. Department of Commerce, for the week ending November 15, indicate that the highest mortality rate was for Wilmington, and the mortality rate for the group of cities as a whole, 12.1. The mortality rate for Wilmington for the corresponding week last year was 13.9, and for the group of cities, 11.3. The annual rate for seventy-eight cities was 11.9 for the forty-six weeks of 1930, as against a rate of 12.7 for the corresponding weeks of 1929. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate. The rates published in this summary are based on midyear population estimates derived from the 1930 census. Cities whose population was found to be less than was indicated by estimates heretofore used will therefore appear as having a higher death rate than usual, even though there may have been no material increase in the actual number of deaths.

ILLINOIS

Campaign Against Cancer.—Dr. Andy Hall, state health director, has announced that five state-wide medical and health organizations have formed an agreement to carry out a vigorous anticancer campaign over the state. The cooperating organizations are the Illinois Department of Public Health, the educational committee of the Illinois State Medical Society, the Educational Association on Cancer, the Illinois branch of the American Society for the Control of Cancer, and the University of Illinois College of Medicine. Special emphasis will be made in an educational drive to halt the increase of cancer on visible parts of the body. The program will include the publication of an illustrated booklet for free distribution throughout the state and for the building of a mobile exhibit made up of wax models, actual specimens, pictures and charts which show cancer of accessible parts of the body, in all of its recognized stages and forms, and a cancer week program.

Society News.—The Southern Illinois Medical Association held its fifty-sixth annual meeting in Mascoutah, November 6-7. The program included papers by Drs. John Niess, Jr., Carmi, on "Effects of Tonsillectomy on the General Health"; Quitman U. Newell, St. Louis, "Remarks on Treatment of Sterility in the Female"; Clyde E. Purcell, Paducah, Ky., "Foreign Bodies in the Respiratory and Food Passages"; William D. Chapman, Silvis, "Medical Organization and Practice"; William H. Evans, Murphysboro, "The Family Physician and the Ex-Service Man." The Canti and Lewis cancer films and Dr. DeLee's three reel film on "The Toxemias of Pregnancy" were shown. Officers elected were president, Dr. Charles W. Hall, Mount Vernon; vice presidents, John E. Reed, Benton, and Charles S. Skaggs, East St. Louis, and secretary, William J. Benner, Anna. The next annual meeting will be held in Olney.——"Syphilis of the Nervous System" was the subject of Dr. H. Douglas Singer, Chicago, November 19, before the Will-Grundy County Medical Society.

Chicago

Society of Allergy Organized.—The Chicago Society of Allergy, which has been meeting informally, was formally organized, November 12. Meetings will be held the third Monday night of each month and scientific programs will be presented. All interested are invited. Drs. Harry L. Huber and Leon Unger were elected president and secretary, respectively.

Society News.—Dr. Herman L. Kretschmer delivered the Mayo Foundation lecture on neurology at Rochester, Minn., November 3, on "Diseases of the Urinary Tract in Infancy and Childhood."——The fifteenth annual meeting of the Institute of Medicine of Chicago will be addressed, December 2, by Dr. George E. Shambaugh on "The Problem of Deafness," and Dr. George Burgess Magrath, Boston, "Some Personal Experiences as a Medical Examiner."——Dr. Abraham Myerson, Boston, addressed the Illinois Society for Mental Hygiene, November 25, on "Inheritance and Environment: Their Effect on Personality."——Madame N. Dobrovolskaya-Zavadskaya of the Curie Institute, Paris, France, lectured at Northwestern University Medical School, November 24-25, on "Some Important Notions from Radiology" and "About the Heredity of Cancer."

Patients Desired for Study of Pneumonia and Hypertension.—The department of medicine of the University of Chicago, in the pursuance of studies of pneumonia, has set aside beds in the Albert Merritt Billings Hospital for the admission, free of charge, of patients whose financial circumstances warrant such consideration. The Lasker Foundation and the department of medicine of the university, which has undertaken a long term of clinical study of hypertension, have arranged for the admittance, free of charge, of cases to the Max Epstein Clinic. The type of patients desired are those less than 40 years of age with high blood pressure and without other symptoms, and patients less than 40 years of age with high blood pressure and other indications of chronic Bright's disease. Such patients will be admitted as ambulatory and will be hospitalized only if necessary. Patients with a fair prospect of being available over a period of years will be given preference.

MARYLAND

Sir D'Arcy Power Lectures at Johns Hopkins.—A series of lectures is being given at the Institute of the History of Medicine, Johns Hopkins University School of Medicine, by Sir D'Arcy Power, England, honorary librarian of the Royal College of Surgeons. His subjects, November 19 and 25, were "Essentials of Medical Biography" and "Medical Bibliography," respectively. He will speak on "The Meals of Our Ancestors," December 2; "Aristotle's Masterpiece," December 3; "Medical Iconography," December 10, and "The Growth of a Hospital," December 17.

Society News.—The West Baltimore Medical Society was addressed, October 21, by Drs. Llewellyn W. Lord, Baltimore, on "End-Results in the Treatment of Acne with X-Rays"; John A. Evans, Baltimore, "Differential Diagnosis of Pathology with the Thorax by Means of the X-Ray," and John F. Hogan, Baltimore, "The Peculiar Course of a Bullet Lodging in the Epididymis."——The third meeting of the Baltimore and Washington Urological Society was held, November 7, in Baltimore; Washington physicians delivered the papers, which were discussed by Baltimore physicians; Drs. Robert Arthur Hooe, Washington, D. C., spoke on "Prostatectomy Complicated by Acidosis"; Horatio N. Dorman, "Hydronephrosis with Aberrant Polar Vessel"; Ralph M. LeComte, "Papilloma in a Vesical Diverticulum," and Charles P. Howze, "Multiple Calculi Within the Utricle: Operation and Results."

MASSACHUSETTS

Society News.—The annual meeting of the Massachusetts Society for Mental Hygiene was addressed, November 18, in Boston, by Sheldon Glueck, Ph.D., on "Modern Trends in Criminology," and Dr. George H. Preston, commissioner of mental hygiene of Maryland, on "Community Mental Hygiene."——The Massachusetts Psychiatric Society was addressed, October 24, by Dr. Albert Warren Stearns on "A State Program of Crime Prevention."

Dr. Duke-Elder to Lecture at Harvard.—Two lectures on "Recent Work on the Metabolism of the Eye" will be delivered at Harvard University Medical School, under the auspices of the Howe Laboratory of Ophthalmology, by Dr. William Stewart Duke-Elder, London, England, in Amphitheater E. The lectures will be given December 15 and 17 on "Physiologic Aspects" and "Clinical Aspects," respectively. Dr. Duke-Elder is honorary research associate at University College, London, and lecturer of ophthalmology, University of London.

Hospital News.—The Somerville Hospital, Somerville, is soon to have an addition to its surgical and obstetric departments involving an expenditure of $150,000, it is reported.——Ground has been broken for the Jackson Memorial Building, a forty-five bed hospital for children to be used by the Boston Floating Hospital for all year care. At the same time the New England Medical Center building, of which the Jackson Memorial will be a part, was started. The Center building will include, among other things, professional services and a twenty bed observation ward. The Tufts College Medical School is the other unit of the New England Medical Center.

MICHIGAN

Licenses Reinstated and Revoked.—The Michigan State Board of Registration in Medicine reports that the license of Dr. John J. George was reinstated, October 15; that Dr. John L. Estabrook's license was revoked, owing to his having obtained money from his patients and others on false pretenses; that Dr. George W. Leuschner's license was revoked, owing to his association with an unregistered practitioner of medicine, and unprofessional and dishonest conduct in his practice. Dr. George W. Bolkcom, Minneapolis, the board stated, made periodic tours throughout the state of Michigan, advertising in the local newspapers before his visits; his license was revoked, owing to his unprofessional and dishonest conduct in his practice. Dr. Sidney H. Culver's license was revoked, as he had been convicted on a charge of abortion, May 29, at Mason.

Five Year Research on Dental Problems.—Representatives of the medical and dental professions held a conference on cooperative research in Detroit, September 7-8. The conference, sponsored by the Children's Fund of Michigan and the Merrill-Palmer School, inaugurated an enlarged plan of research on the growth of the dental apparatus and related parts under the direction of Samuel J. Lewis, D.D.S., following a preliminary five year study recently completed. The program, to be financed by the Children's Fund, comprises a study of growth fluctuations based on taking the impressions of teeth and dental arches and anthropometric measurements of the head and face of a group of 500 children, ranging in age from 2 to 10 years, once a year for five years. Intra-oral and extra-oral dental roentgenograms of the entire group will be taken in a study of the shedding of deciduous teeth, the eruption of the permanent teeth and the development of the third molars. Roentgenograms of the hands and elbows of the entire group will be taken to secure correlations between dental, carpal and epiphyseal growth. Impressions of the upper arches and roentgenographic studies of the sinuses and jaws will be made of a group of new-born babies to secure measurements for comparing the growth curves of dental arches and other growth curves of the human body. The impressions of teeth and dental arches of parents of a selected group of fifty children taken over a five year period will be the basis of studies of the part played by heredity in the dental growth and development. The study will center also on the relation between diet and dental growth in caries. The Merrill-Palmer School, the Children's Hospital of Michigan, the Protestant Orphanage of Detroit and the Methodist Children's Village are cooperating in supplying children and records for the study.

MINNESOTA

Reprints of Clinical Conferences.—The *Journal-Lancet* has announced that the series of clinical pathologic conferences which it has published monthly during the year will soon be available in index, loose-leaf reprints. About 250 cases will appear each year. The work will be under the direction of Dr. Elexius T. Bell, professor of pathology, University of Minnesota Medical School, Minneapolis.

Illegal Practitioner Sentenced.—The Minnesota State Board of Medical Examiners recently reported that Elmer Mason entered a plea of guilty to a charge of practicing healing without a basic science certificate at Winona. Mason was the leader of a group of Indian doctors who, during July and August, sold between four and five thousand dollars' worth of Indian roots and herbs to the citizens of Fillmore and Houston counties. Judge Gates sentenced Mason to serve three months at hard labor in Houston County. Another member of the group has completed a sixty day sentence in the county jail of Houston.

MISSOURI

Court Reverses Board's Decision.—Circuit Judge Hall, St. Louis, reversed the state board of health's decision, October 20, in revoking the license to practice medicine in Missouri of Dr. William R. Harman, Springfield. Dr. Harman's license had been revoked in June on the charge that he had produced an abortion. (The Journal, July 5, p. 55.)

Society News.—The Kansas City Society of Ophthalmology and Otolaryngology recently started the publication of a monthly bulletin. Dr. Burt R. Shurly, Detroit, addressed the society, September 18, on "Some Observations on Vitamin Deficiency, Relative to the Eye, Ear, Nose and Throat, with Especial Reference to Vitamin A. Deficiency in Diseases of the Paranasal Accessory Sinuses, from the Research Laboratory of the Detroit College of Medicine."——The fall tournament of the Physicians' Golf Club and the Dentists' Golf Club of St. Louis was held at the North Hills Country Club, October 17. A team of twelve members from each club played for the Dr. Rutherford B. H. Gradwohl trophy, the physicians winning. This was the second contest between the clubs. The first tournament, July 11, resulted in a tie. These facts are engraved on the trophy, which will be displayed at the St. Louis Medical Society.——Dr. Wilfred E. Martin addressed the Lafayette County Medical Society, October 28, at Odessa on "Diagnosis and Treatment of Infantile Paralysis."——"New Methods in Treatment of Fractures" was the subject of Dr.

Myron O. Henry, Minneapolis, before the Jackson County Medical Society, November 18; the society was addressed, November 25, by Drs. Julius Frischer, Kansas City, on "Transurethral Surgical Diathermy for Prostatic Hypertrophy"; John Wesley Field, "Clinical Psychology," and Otto J. Printz, "Surgical Treatment of Peptic Ulcers." Dr. Ferdinand C. Helwig conducted a clinical pathologic conference.

NEW YORK

Society News.—"Kidney Disease from the Newer Concepts of Its Diagnosis and Treatment" was the subject of Dr. William Goldring's address before the Medical Society of the County of Nassau, October 28.——Dr. Charles Ward G. Crampton, New York, addressed the Medical Society of the County of Albany, November 18, on "Making the Periodic Health Examination Practical," and Dr. Nellis B. Foster, New York, "Some Diseases Recognizable in the Preclinical Stages."——The Medical Society of the County of Kings was addressed, November 18, by Dr. Arlie V. Bock, Boston, on "Physiological Changes Induced by Exercise"; Dr. Robert Tait McKenzie, Philadelphia, "Exhaustion as Shown in the Face," and Charles E. Barker, Grand Rapids, Mich., "Value of Exercise from the Preventive and Remedial Viewpoint." An afternoon session, open to the public, was addressed by the same speakers on "Exercise and Health," "Fatigue and How to Recognize It," and "How to Live One Hundred Years," respectively.——A symposium on peptic ulcer was conducted before the East New York Medical Society, November 24, by Drs. Isidore A. Feder, Reuben Finkelstein and Albert A. Berg.

Hospital Referendum Carries.—Voters of Nassau County carried the hospital referendum by a vote of 8 to 1, November 4, which approved of a bond issue of $1,750,000 for the erection of a 200 bed county general hospital which should have special provisions for the care of contagious and venereal diseases, chronic, curable and convalescent patients and the treatment of psychopathic cases. Ninety thousand dollars of the sum will be used for land and the remainder for buildings. The proposed hospital will cost each taxpayer only 19 cents for each $100 of assessed valuation, should the entire amount be paid in one year. The present general hospitals in Nassau County are private institutions, and the only one operated by the county for the care of the sick is the tuberculosis sanatorium at Farmingdale. The new appropriation marks the culmination of eight years of effort on the part of the Medical Society of Nassau County to obtain more adequate hospital accommodations. A particularly interesting feature of the campaign and an important factor in securing sympathetic public interest was the medical society's exhibit at the annual county fair, in which special emphasis was placed on the need of a new county hospital. The project was further stressed by the distribution of hand bills comparing present facilities with minimum requirements and describing the size, nature and cost of the proposed institution.

New York City

Third Harvey Lecture.—Dr. G. Elliot Smith, University College, London, England, will deliver the third Harvey Society Lecture at the New York Academy of Medicine, December 4, on "The Peking Man."

Dr. Dougherty Honored.—Dr. Daniel S. Dougherty was honored, November 6, at a testimonial dinner tendered by his colleagues on the medical board of City Hospital on the occasion of his retirement from active service as attending otolaryngologist. Dr. Dougherty has been a member of the board for twenty-three years, during fourteen of which he served on its executive committee. He has been professor of otology in the New York Polyclinic Medical School and Hospital during the past decade and, since 1916, served as secretary of the Medical Society of the County of New York and last year became its director of activities. In 1925, he became secretary of the state medical society.

Dr. Gregg Appointed Director of Medical Sciences.—Dr. Alan Gregg has been appointed director for the medical sciences of the Rockefeller Foundation. He will occupy the position vacated by the death, February 16, of Dr. Richard M. Pearce, Jr., in whose work he had for many years closely participated as associate director for the medical sciences. Dr. Gregg will assume his new duties, January 1. Graduating from Harvard University in 1911, and from the Harvard Medical School in 1916, Dr. Gregg, after a year as intern at the Massachusetts General Hospital, served overseas and was made a captain in the medical reserve corps of the British Army. On March 1, 1919, he first took up his work with the Rockefeller Foundation as a field staff member of the International Health Board. For three years he was actively engaged in public health work in Brazil. In 1922, he became associate director of the division of medical education. After making studies of medical education in a number of countries which included Colombia, Mexico and Italy, he was stationed at the Paris office of the Rockefeller Foundation, from which since 1925 he has been directing Rockefeller Foundation work in the medical sciences in Europe.

OKLAHOMA

Society News.—The next annual session of the Oklahoma State Medical Association will be held, May 11-13, 1931, at Oklahoma City with headquarters in the Shrine Temple.——The Tulsa County Medical Society was addressed, November 10, by Dr. Dean W. LeMaster on "Treatment of Diabetes with Low Fat and High Carbohydrate Diets."——The third annual clinic day of the Tulsa Academy of Medicine was held at Morningside Hospital, Tulsa, November 18; Dr. Meyer Wiener, associate professor of clinical ophthalmology, Washington University School of Medicine, St. Louis, conducted a clinic in the afternoon on plastic surgery of the eyelids and spoke in the evening on "Certain Eye Conditions of Importance in the Work of the General Practitioner."——Dr. Fred G. Dorwart addressed the Muskogee County Medical Society, October 26, on heart conditions.——The Garvin County Medical Society was addressed, October 22, in Pauls Valley by Dr. Floyd Gray, Oklahoma City, on obstetrics.——The Okmulgee-Okfuskee County Medical Society was addressed at Okemah, October 20, by Drs. Frank LeRoy Carson, Shawnee, and Edward K. Witcher, Tulsa, on "Sodium Amytal Anesthesia" and "Use of Iodized Oil in Chronic Pelvic Disorders," respectively.——Drs. Hugh G. Jeter and Willis K. West, both of Oklahoma City, spoke on nephritis and deformities of the arm, respectively, before the Caddo County Medical Society, October 22, at Anadarko.——The Lincoln County Medical Society was addressed at Chandler, October 1, by Drs. Horace Reed, Oklahoma City, and Marvin B. Glismann, Okmulgee, on goiter and obstetrics, respectively.

OREGON

Food Poisoning Traced to Pie.—An explosive gastrointestinal outbreak occurred at Reed College, Portland, during September. A large number of students became violently ill, due to eating contaminated pie. All the blood specimens from patients at the college that were tested gave some agglutination with *Bacillus paratyphosus* B but not with *Bacillus paratyphosus* A. Twenty-nine of the cases required hospital treatment, and forty or fifty were cared for in homes or dormitories. There were no fatalities. Transmission of the infecting agent was supposed to be due to mice.

Society News.—The Portland City and County Medical Society was addressed, October 1, by Drs. William K. Livingston on "Studies of the Sympathetic Nervous System"; Drs. Albert L. Mathieu, Frank E. Trotman, Howard D. Haskins, Edwin E. Osgood and Joyce Albert presented a joint paper, October 15, on "Sedimentation Rates in Gynecology and Obstetrics: Results by the Modified Westergren Technic in Over 2,200 Determinations on 1,200 Patients"; Dr. John C. Brougher, Vancouver, Wash., spoke on "Parathyroid Tetany."——Dr. Goodrich C. Schauffler, Portland, addressed a joint meeting of the Central Willamette Medical Society and the Polk-Yamhill-Marion Medical Society, October 7, at Corvallis on "Gynecology in Infants and Female Children."

PENNSYLVANIA

Health Centers Opened.—Six health centers for children from infancy to 6 years were recently opened in Schuylkill County by the Anti-Tuberculosis Society in cooperation with the state department of health. Examining physicians refer cases with handicaps to the family physician and send recommendations to the parents. The centers are open one day in the first week of each month.

Personal.—The forty-fourth annual dinner of the Association of Resident and Ex-Resident Physicians of the Philadelphia General Hospital will be held, December 2, at the Pennsylvania Hotel, Philadelphia. The dinner is in the form of a testimonial to Mr. George Taggart. Ex-interns are requested to notify the secretary, Dr. George Wilson, 133 South Thirty-Sixth Street, Philadelphia, of change of address.——At a regular meeting of the state board of medical education and licensure, November 13, at Harrisburg, Dr. Irvin D. Metzger, Pittsburgh, was elected president, and Charles D. Koch, deputy superintendent of public instruction, was elected secretary.

Society News.—The Berks County Medical Society was addressed, October 14, by Dr. Robert M. Alexander, Reading, on "Heart Disease from the General Practitioner's Standpoint."——Dr. Orlando H. Petty, Philadelphia, addressed the Blair County Medical Society, September 30, on "Obesity and Its Treatment."——A discussion of pernicious anemia formed the scientific part of the program of the Clarion County Medical Society in Knox, October 28.——Drs. Frank F. D. Reckord, Allen Z. Ritzman and Louis W. Wright, Harrisburg, conducted a symposium on pneumonia before the Dauphin County Medical Society, October 14.——Dr. Ralph H. Knapp, Youngsville, gave a summary from the recent literature on nephritis before the Warren County Medical Society, October 20, and Drs. William M. Cashman and Hamblen C. Eaton, Warren, spoke of the use of the new mercurials in relieving edema.——"The Relation of Posture to Pain and Visceroptosis" was the subject of Dr. John B. Carnett, Philadelphia, before the York County Medical Society recently.——Dr. Daniel Longaker, Philadelphia, addressed the Northampton County Medical Society, November 21, on "Conservative Obstetrics."

Philadelphia

Personal.—A bronze portrait bust of Louis Pasteur, through the will of Arthur C. Hugenschmidt, D.D.S., a friend of the famous scientist, who died in Paris last year, has been sent to the University of Pennsylvania. The bust was first placed on public view in the school of medicine, October 10, when a two-day celebration commemorating recent progress in medicine was opened. Dr. Hugenschmidt, dentist to Pasteur, was presented with the bust by Madame Pasteur after her husband's death.

Society News.—A symposium on clinical allergy was conducted before the Philadelphia County Medical Society, November 26; Dr. Arthur Fernandez Coca, New York, spoke on "Etiology, Symptomatology and Diagnosis of Allergic Disease"; Drs. James H. McKee, Martin E. Rehfuss, Harry P. Schenck and John H. Stokes took part in the discussion.——Dr. Louis D. Englerth, among others, addressed the Northern Medical Association of Philadelphia, November 17, on "The Treatment of Varicose Veins by the Injection Method."——[illegible] Society of Philadelphia was addressed, [illegible] others, by Drs. Isidor S. Ravdin and Charles G. Johnston on "The Absorption of Sodium Chloride from the Intact Gallbladder."——The West End Medical Society's program, November 19, consisted of a symposium on abdominal pain; the speakers were Drs. Joseph E. Kaplan, Samuel L. Immerman, Benjamin B. Rittenberg and Abraham Trasoff.

TEXAS

East Texas Healthcade.—A group of health workers, driving by automobile, recently spent five days covering 1,000 miles on a fixed itinerary, visiting forty-one towns, where they delivered 188 addresses to 18,000 listeners. The movement was inaugurated jointly by the director of the public health department of the East Texas Chamber of Commerce and the state department of health, headed by Dr. James C. Anderson, Austin, state health officer.

Changes at University of Texas.—Among the changes on the faculty of the University of Texas School of Medicine, Galveston, that were recently announced are: A. Lawrence Bennett appointed as associate professor of psychology, succeeding Philip L. Gray, resigned; Dr. William L. Marr, instructor in the practice of medicine, succeeding Dr. James A. Bradley, resigned; Dr. Harriss Williams transferred from experimental surgery to surgical pathology, and Dr. Robert M. Moore, appointed to succeed him.

Society News.—At a recent meeting of the Texas Association of Sanitarians, its name was changed to the Texas Public Health Association; Dr. Harry K. Read, Houston, was reelected president, and E. G. Eggert, sanitary engineer for the state department of health, reelected secretary.——The Texas Pediatric Society was addressed, October 28, in Fort Worth, among others, by Drs. Roy P. Forbes, Denver, on "Use of Catarrhal Vaccine in the Treatment of Respiratory Conditions"; William Weston, Columbia, S. C., "Foods That Do Not Nourish," and Josephine B. Neal, New York, "Encephalitis in Children."——The proceeds from the sale of "The Medicine Man in Texas," a history of the pioneer physicians of the state, of which the woman's auxiliary of the state medical association is sponsor, are to be used for a loan fund for the senior medical students at the University of Texas.——The Texas Interurban Club of Internists held a study week at the Mayo Clinic, Rochester, Minn., September 22-26. The program consisted of a series of lectures of vascular, renal and cardiac disease, medical seminars on gastro-enterology and other subjects, a conference on pathologic anatomy in relation to clinical observations, and symposiums on metabolic disorders and thyroid disease. Evening lectures were delivered by Drs. Frederick P. Moersch on "Multiple Sclerosis," and J. B. Doyle, "Encephalitis Epidemica."

GENERAL

Complimentary Copies of Biographic Sketches.—There are available for presentation by the author a number of copies of the *Biographical Sketches and Letters of T. Mitchell Prudden, M.D.*, by Lillian E. Prudden, which pupils of Dr. Prudden might be happy to have. If requests for the book are sent to *Miss Lillian E. Prudden, 424 Whitney Avenue, New Haven, Conn.*, they will be complied with as long as the presentation copies last.

Hygeia for School Teachers.—Two hundred and sixty-six subscriptions to *Hygeia* were recently secured by Dr. Earl F. Morris, director of health and physical education, Kansas State Teachers' College, Hays, Kan., to be sent to the student teachers in the college. Among other *Hygeia* subscriptions recently received are fifty-six from the woman's auxiliary of the Stark County Medical Society, Canton, Ohio, for teachers of that county. The principal of the Fair Oaks Public School, Fair Oaks, Ind., recently ordered twenty-one subscriptions to be sent to the schools in that community.

Dr. Williams Retires as Director of National Committee.—At the twenty-first anniversary meeting of the National Committee for Mental Hygiene, November 13-14, in New York, it was announced that the major objective in the committee's activities in the near future would be a nation-wide program of research in mental hygiene in cooperation with American universities. It will be carried on by Dr. Clarence M. Hincks, Toronto, Ont., the new general director who succeeds Dr. Frankwood E. Williams, New York, who, January 1, will retire after fourteen years of service. Dr. Hincks is founder and director of the Canadian National Committee for Mental Hygiene and vice president of the International Committee for Mental Hygiene. Dr. Charles F. Martin, Montreal, discussed the progress of mental hygiene work in Canada; Dr. Ralph A. Noble, Sidney, New South Wales, reviewed the work done in Australia, and Mr. Clifford W. Beers, founder and secretary of the National Committee and of the American Foundation for Mental Hygiene, outlined plans for international activities in mental hygiene work. Officers elected were honorary president, Dr. William H. Welch, Baltimore; president, Dr. Charles P. Emerson, Indianapolis, and secretary, Mr. Clifford W. Beers, New York.

Society News.—The next semiannual meeting of the Society for the Study of Asthma and Allied Conditions will be held in New York, December 6, at the New Yorker Hotel. This society is a limited organization, membership to which is by invitation only, to men who not only specialize in immunology but also have done real scientific work.——The Radiological Society of North America will hold its annual meeting in Los Angeles, December 1-5; among the speakers will be Drs. Emil G. Beck, Berkeley, whose subject will be "Cooperation Between Surgeon and Radiologist Essential to Effective Cancer Therapy"; Webster W. Belden, New York, "Further Observation of Osteitis Deformans"; Joseph C. Bloodgood, Baltimore, "Relative Merits of the Irregular Practitioner, Particularly in Relation to Cancer"; Carl H. Parker, Pasadena, Calif., "Treatment of Compressed and Impacted Fractures of the Bodies of the Vertebrae"; William Edward Chamberlain, San Francisco, "Bone and Joint Changes of Leprosy"; Robert S. Stone, San Francisco, "X-Ray Findings in the Chests of Tuberculin-Positive Children," and Harry M. Weber, Rochester, Minn., "Roentgenologic Manifestations of Tuberculosis in the Alimentary Tract," and Jesse W. M. Du Mond, Ph.D., and Archer Hoyt, Ph.D., Pasadena, "Present Status of the Problem of Measurement of X-Ray Intensity and Quality."——On call of the surgeon general of the U. S. Public Health Service, a conference of health and welfare workers was held in Washington, D. C., October 29, to consider ways and means of controlling the high mortality of colored people in rural communities and congested cities. The committee was formed to consider the year-round health movement with Dr. George W. Bowles, York, Pa., chairman. Plans are made for observance for the next Negro health week, which includes the birth date of Booker Washington, April 5.——"Undulant Fever from a Physician's Standpoint" and "Newer Aspects of the Prevention of Tuberculosis" will be the subjects of Drs. Richard A. Kern, Philadelphia, and Jay A. Myers, Minneapolis, before the thirty-fourth annual meeting of the United States Live Stock Sanitary Association, December 3-5, in Chicago.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 8, 1930.

The Public Health

In his annual report for 1929, Sir George Newman, chief medical officer of the ministry of health, again calls attention to the falling birth rate. The natural increase of population by births over deaths is now less than half what it was so recently as the period 1921-1925. The principal causes of death per thousand deaths were: diseases of the heart and circulation, 225; respiratory diseases, 157; cancer, 107; diseases of the nervous system, 82; tuberculosis, 71. There was lost to the insured population alone by sickness or disablement 29½ million weeks' work. A large section of the report is devoted to maternal mortality, which is lower in London than in any other part of the country, both for puerperal fever and for other causes, and high in the industrial North and in Wales. Where the maternal mortality is high the infant mortality also tends to be excessive. Effective antenatal supervision of every case of pregnancy is declared to be needful and there is also a need for improved obstetric practice.

BIRTH CONTROL

Considerable space is devoted to birth control. It is laid down that organized instruction in contraceptive methods is foreign to the purpose of a maternity and child welfare center established by a local authority for nursing and expectant mothers, would militate against the object of its establishment, and might well be alien to its clients. But "in exceptional circumstances, when avoidance of pregnancy seems desirable on medical grounds, the mother attending the center should be referred for advice as to birth restriction to a private practitioner attached to or recommended by the center, or to a suitable hospital or clinic. It is pointed out that birth control is not a novel idea but has existed from the earliest times. The only change is that it has become more conscious, concrete and talked about, and more artificial in method. The change was not necessarily evil nor did it raise new moral issues. It has brought definite relief to a large number of persons from immediate difficulties. However, its indiscriminate advocacy has had many disadvantages. Organized public instruction is liable to become propagandist and pseudo-authoritative and to lead to commercial exploitation. The effects may be not only local and physical, but general, organic, psychologic and even antisocial. The means may be deleterious in their results and are in any case uncertain in their action. There is no guarantee of value, physical, moral or humane. Birth control cannot be, in any case, a substitute for social amelioration, self-control, restraint or mutual consideration. It is doubtful whether there is sufficient unanimity in the medical profession or in public opinion as to contraceptive methods to justify a local authority supporting out of the taxes a center for systematic instruction.

THE INSURANCE MEDICAL SERVICE

The number of insurance practitioners in England and Wales was 15,573 and the average number of insured on one man's list was 932; 44 per cent of men physicians and 33 per cent of women are engaged in insurance practice. As to efficiency, it is declared that patients as a rule are considerate to their physicians and do not make unnecessary demands, and the physicians do their best for patients. But there are of course exceptions to both rules.

THE INCREASED SICKNESS CLAIMS

It has been shown in previous letters that excessive sickness claims are inherent in such a form of medical socialism as the insurance system, which, while excellent from the point of view of insuring persons against sickness who would be unable to pay for it in the ordinary manner, is not so in throwing the greater part of the cost on others, who derive no benefit from the system. There was a further increase in the number of sickness claims in 1929, which led to investigations. A scrutiny was made of a large sample of those cases which were referred from the insurance practitioner to the "regional medical officer" by the lodges when they doubted the claim. Many of these persons concerned avoided coming for examination by ceasing to draw benefits. The proportion was found highest in married women of 45 and under; single women came next, and both of these were much higher than the men or the married women of 46 and over. The large proportion of persons who ceased to draw benefit when referred after a short period of incapacity for some trivial cause, set out as catarrh, chill, cold, influenza or neuralgia, is noteworthy. It is admitted that in many of these cases a final certificate would have been given if the patient had not been referred. But it is stated that "when full allowance has been made for this, it is difficult to resist the conclusion that in many of these cases a final certificate ought to have been issued at an earlier date." The societies may be compelled for the protection of their funds to refer cases of this type at a much earlier stage of illness.

A RECORD CANCER DEATH RATE: "CANCER CURERS"

As the figures show, cancer is now the third of the great killing diseases. The number of deaths from cancer amounted to 56,896, which was 1,437 per million of population, the highest ever recorded, and 10 per cent of the total number of deaths. The rate has doubled since 1890 and trebled since 1870, and more than quadrupled since 1850. A curious change has taken place in the sex incidence. The susceptibility of females in 1851-1855 was more than double that of males, but in 1921-1925 the two sexes were approximately level and in the last few years the susceptibility of males has apparently been the greater. When a cancer "cure" is brought to the notice of the cancer committee of the ministry of health, information is asked as to the nature and composition of the remedy, authentic records of proved cases of success, and evidence that it is not harmful. It is found that the professed "cancer curer" is rather reserved in the presence of this investigation. It is admitted that he may cure some superficial cancer by caustics, but this action is well known to the medical profession and it is also known that removal can be effected more quickly and usually more painlessly and with less disfigurement by surgery. Charlatanry more often than ignorance seems to be the trouble with the cancer curer. He trades on the facts that some cancers are difficult to diagnose, that his preparations sometimes lead to healing of the local disease, and that, on the part of the public, fear of the disease, ignorance and the secrecy with which the treatment is enshrouded combine to make people ready victims.

The Liquor Problem in Great Britain

Further important information on the drink question is furnished by a government blue book just published. Jan. 1, 1929, there were in England and Wales 78,307 saloons licensed for the sale of intoxicants for consumption on or off the premises and 22,171 for consumption off the premises, giving a proportion of 19.7 on-licenses and 5.6 off-licenses per 10,000 of population. In the decade 1895-1904 there was an average annual decrease of on-licenses of 486 and in the twenty-four years 1905-1928 of 882. Jan. 1, 1908, there was 1 on-license for every 367 persons; Jan. 1, 1929, only 1 for every 506. The number of convictions for drunkenness in 1929 was 51,966, against 55,642 for 1928, and was the lowest in any years since 1918. The cases in which the person convicted of drunkenness is reported to have taken methylated spirit decreased from 446 in 1928 to 409. Thus the great improvement in the habits of people with regard to indulgence in alcoholic drinks, which has been in progress for some generations, continues.

Eyesight Tests for Automobile Drivers

Under the new road traffic bill the following question was drafted to be put to applicants for a driving license: "Is your power of distant vision in one eye at least (with glasses if worn) not less than 50 per cent of normal?" After consultations between the minister of transport and the British Medical Association, the eyesight requirement was altered. The question now reads: "Are you able to read at a distance of 25 yards in good daylight (with glasses if worn) an automobile car plate containing six letters and figures?" In the opinion of the British Medical Association, any one who cannot bring his vision up to this standard with glasses cannot be regarded as a safe driver of an automobile. The second disability that will be regarded as an absolute bar to obtaining a driver's license is epilepsy or liability to sudden attacks of disabling giddiness or fainting.

PARIS

(From Our Regular Correspondent)

Oct. 29, 1930.

Postoperative Accidents in Cerebral Surgery

In an article in the *Presse médicale*, Dr. T. de Martel has reported the results of his wide experience with cerebral surgery and has described the nature and treatment of the accidents that may occur after the removal of brain tumors. In his opinion, such accidents are due to circulatory disturbances of the cerebrospinal fluid. The extravasated blood may clog the points of communication between the cavities in which the fluid circulates. There results an intraventricular hypertension, which distends the cavities of the ventricles and brings about an anemia of the compressed peripheral cerebral tissue. Under this pressure, the lower portions of the brain tend to protrude through the occipital opening. The upper centers are attacked first, which becomes manifest through loss of consciousness and coma; then the vegetative centers, the respiratory centers, and the heat regulatory centers are attacked. The patient dies in hyperthermia, with respiratory syncope. The treatment for these accidents was described by de Martel explicitly. The hyperthermia must be combated, it being of a physiologic nature and not infectious, by cold compresses and repeated intestinal irrigations with cold water. A lumbar puncture is done, or, better still, a cistern puncture, to be repeated until the fluid that emerges is clear. If the intraventricular hypertension recurs nevertheless, an intraventricular puncture should be done without delay. Finally, also intravenous injections of a 15 per cent hypertonic solution of magnesium sulphate render excellent service by diminishing, through osmosis, the amount of cerebrospinal fluid and the cerebral edema that sometimes follows the operative act, especially if performed with the electrical knife. Injections of epinephrine are useful when a lowering of arterial tension is associated with the hyperthermia. All these maneuvers when indicated necessitate prompt action, which requires every patient who has undergone a brain operation to be kept under constant supervision and in charge of extremely competent personnel.

Use of Ultraviolet Rays for the Destruction of Harmful Insects

An apparatus invented by Mr. Gourdin, and already in use in France and in Greece, utilizes ultraviolet rays to attract and to destroy nocturnal insects that cause harm to man and to agriculture. The apparatus is a sort of beacon, supplied with a mercury vapor lamp, which attracts insects and captures them in a reservoir trap. During an experiment carried out in the vicinity of Montpellier on a clear night, 545,073 insects were captured within two hours, of which 513,000 were anopheles mosquitoes, 3,200 cochylis and 12,000 butterflies. Further experiments, no less conclusive, have been carried out in Corsica, Algeria and Italy. The Société des viticulteurs of France, in recognition of the protection given to vineyards by the destruction of the insects that tend to destroy them, has bestowed a medal on the inventor. Great importance is attached to this invention for the prophylaxis of malaria.

Employment Bureau for Students

The cost of higher education and of living in general has created in Paris a situation that is exceedingly unpleasant for students of limited means. Many students find it necessary to eke out their slender income by serving, in the evening, as taxicab drivers or in other capacities. An employment bureau has been established by the Association des étudiants at its headquarters, 13 rue de la Bucherie, under the name of Office des travailleurs intellectuels, with a view to procuring for its members part-time work. A new occupation has been opened up to them through the initiative of the directors of theaters and motion picture houses: that of *placeur*, or usher. Heretofore the ushering has been done by women. It requires only a pleasant manner and a little dexterity of movement. The women who serve in that capacity are usually of the indolent sort. Often, when not busy, they stand about the corridors and converse among themselves, to the disturbance of the audience. The innovation has been welcomed by the public, which shows its sympathy for these courageous young men by giving them large tips. During the intermissions, they devote themselves to their books, which they bring with them and the audience is no longer disturbed by chattering in the corridors. The press has contained a number of articles on the subject. Feminine sympathizers complain because an easy source of revenue has been taken away from women who in this way were supplementing their otherwise meager incomes. In the main, the innovation is approved by the public. It is well for the public to know that an intellectual career often requires great sacrifice and that the professions are overcrowded because they attract too many young men—far beyond the needs of the country.

Ceremonies Honoring Ambroise Paré

The Academy of Medicine devoted a recent session to honoring the memory of Ambroise Paré, the "father of French surgery." Prof. Jean-Louis Faure was selected to deliver the memorial address. In the beginning of his career, Paré was an ordinary "barber," being authorized only to shave the beard, to cut the hair and to practice bleeding according to the recognized indications of that period (1509-1590). Later, he became attached for two years as assistant to the Hôtel-Dieu de Paris, and it was there that he saw operations performed according to the customs of his time, which included the use of the cautery and dressings of boiling oil, which accomplished a veritable antisepsis, though in a cruel fashion. Paré was the first to apply arterial ligatures in amputations, in opposition to the belief of Hippocrates that it is best to allow wounds to bleed to prevent inflammatory congestion. He was the surgeon of Francis I, Henry II, Charles IX, Henry III and Henry IV. He died at the age of 80. During the massacre of the Huguenots and the sad days of St. Bartholomew, Charles IX protected him, although he was a Protestant, by concealing him, at the Louvre, in his own apartment. He had considerable trouble in securing the diploma of the Royal College of Surgeons, as one of the requirements for a candidate was that he should defend his graduation thesis in Latin, a language with which he was not on the best of terms. He succeeded in getting his diploma only through the intervention of the king. In spite of this, his keenness of observation, his inventive genius, his manual dexterity and his unimpeachable professional honor won for him the title that posterity has bestowed on him for more than three centuries and caused him to be lifted up as the model of a surgeon.

Death of French Physiologist Gley

Dr. Emile Gley, an eminent French physiologist, died recently in Paris. Born at Epinal, in 1857, after pursuing his studies in the Facultés de médecine de Montpellier and de Nancy, in the Facultés des Lettres de Nancy and de Paris, in the Collège de France, and in the laboratoire de Marey, secured the diplomas of doctor of medicine and licencié-ès-lettres. Gley was awarded on several occasions the title of "laureate" of the Academy of Medicine and of the Academy of Sciences. Former agrégé professor of the Faculté de médecine de Paris, he became later occupant of the chair of general biology in the Collège de France. He was likewise the correspondent of various foreign academies. His researches embraced a broad field of physiology (functioning of the heart, coagulation of the blood, innervation of the lymph vessels, antitoxin function of the liver, functions of the thyroid gland and of the parathyroid glands, rôle of the suprarenal glands, internal secretions). He was a former president of the Academy of Medicine. Last July, the Institut de France bestowed on him one of the Osiris prizes. He was the author of "A Treatise on Physiology," which has remained a classic.

TURKEY

(From Our Regular Correspondent)

Ankara, Oct. 30, 1930.

Third National Medical Congress

The third national medical congress was held, September 17-19. Ismet Pasha, the prime minister, in the opening address mentioned that the maximum number of students had been admitted to the medical school this year, but there still would be in the future a scarcity of physicians and it would be necessary to arrange for another medical center. The minister of health and social assistance, Prof. Dr. Refik Bey, presided. The foremost subjects for discussion were syphilis, cancer and scarlet fever. Drs. O. Sherefeddin and A. Shukri reported on the biology of syphilis and on syphilis laboratories, Drs. H. Reshad, H. Behdjet and F. Kerim on the clinical aspects of syphilis, and Dr. Talat on the treatment of syphilis. Drs. Hamdi Suat, Saim Ali and Lutfi reported on cancrology, Drs. A. Kemal and Burhaneddin on the surgical treatment of cancer, and Drs. S. Mehmed and T. Remzi on radium treatment of cancer. Drs. Server Kiamil and Hasan Vasif reported on scarlet fever. The congress was open to miscellaneous subjects, among which were roentgen treatment of asthma, cancer and the pathologic laboratory, syphilis of the stomach, malaria treatment of syphilis of the nervous system, the treatment of tetanus, the relation of race to cancer, cancer in Turkey, cancer of the upper respiratory tract, relation of cancer and syphilis, rachitis from the social point of view, smallpox vaccine and its subcutaneous application, scarlet fever studies of the ministry of health, bone tumors and the value of roentgen diagnosis, Wassermann reaction in advanced age, syphilis and bismuth, measures against the practice of abortion, proprietary medicines of Turkish origin, an uncommon form of encephalitis, frontal sinus coccidiosis of the right eye, measurement of intensity of natural ultraviolet rays in Turkey, and observations from the mental hygiene point of view.

In order to provide meetings and to further surgical publications it was decided that the surgeons organize a Turkish surgical society.

The 1,500 pages of reports have been distributed to each of the 500 congress members who then had an opportunity to visit the exposition which had been arranged in connection with the congress. Here proprietary medicines, medical and surgical instruments of Turkish and foreign origin, together with casts of the hygiene museum, health posters, health propaganda publications and diagrams of the ministry of health were on exhibition. The collections in connection with the development of vegetable, animal and human cancer as related to the discussions exhibited by Prof. Dr. Hamdi of the pathologic laboratory of the medical faculty proved to be of great interest.

The next congress is to be held in 1931 again in Ankara. The minister of health, Prof. Dr. Refik Bey, has been reelected president. The chief topics for discussion are to be the questions of nutrition in urban and rural communities, infant and child nutrition, and rachitis.

Children Excluded from the Cinema

Until now there has been no special law in Turkey excluding children from motion picture houses. At all performances, small children and even infants can be observed in such places. Often the young mother has no reliable person at home with whom to leave the child, and the young woman of the present day is much interested in the cinema. She is now at liberty to go pretty much were she pleases. For the reason that among the poor classes the old custom of going everywhere *en famille* is still adhered to, it is no rare occurrence for the audience at the height of a performance to be disturbed by the wails of nurslings.

Diseases of the respiratory tract and infectious disease in children can often be traced to the fact that the children have been taken to the cinema, where they have sometimes remained for hours and where overcrowding, smoke and vitiated air are so often prevalent.

Article 164 of the new public health law, which goes into effect November 6, makes it prohibitive for children under 6 years to be taken to the cinema. Children from 6 to 12 years may visit the cinema until 8 p. m. Exhibitors are obliged to put up notices in large letters and in conspicuous places. Children found in cinemas contrary to the provisions of the law will, if necessary, be forcibly removed and their parents or wards as well as the cinema proprietors fined in order to safeguard the health of growing children.

The Child Care Department of the Istanbul Asylum

As the new municipal law provides for certain regulations in regard to child welfare work, the municipality of Istanbul has prepared a program in which the first step is to broaden the activities of the Istanbul asylum for the old and infirm, where deserted infants are cared for also. In the future, preschool children in need of state protection are to be received there. Arrangements are to be made for good physical care and also for the mental development of these children.

BERLIN

(From Our Regular Correspondent)

Nov. 3, 1930.

The Importance of Psychic Processes

In an article in the *Deutsche medizinische Wochenschrift*, Prof. G. von Bergmann of Berlin emphasizes the importance of the psychic for the treatment of the physical. While a few physicians of the old régime (for instance, Hufeland, in his "Makrobiotik") recognized the influence of emotions on the bodily functions, more precise research on the subject was not done until recent years, especially since the Russian psychologist Pavlov established by his famous experiment on dogs the existence and the mode of origin of a psychically induced secretion of gastric juice. It has been shown by hypnotic experiments on man that the mere suggestion that a fine meal is spread before one may stimulate the secretion of the gastric juice. If one looks through a "celluloid window" set experimentally in the abdomen of a rabbit, it may be observed that an active movement of the whole intestinal canal begins when a turnip is shown to the hungry animal. If, however, the ear of the rabbit is then pinched, under the influence of the pain the intestinal movements will quiet down and the intestine will become pale. At the mere suggestion of physical work that is to be done with the right arm, the right arm becomes heavier owing to the influx of a greater blood supply. These remarkable facts attracted attention before they were understood. As far back as 1834, Beaumont reported observations on Alexis St. Martin, who had a stomach fistula through which one could observe that, when the subject was influenced by fear or anger, the gastric walls became red and dry and lost their shiny appearance, while the gastric secretion was diminished. Some time ago, a man was presented at clinical lectures who gave evidence of a chill, accompanied by trembling and goose-flesh, when he caught sight of the physician in his white overgarment standing near him, suffering from the delusion that the physician was a snow man and that he himself was standing nude out in the cold. Many such illustrations of the influence of the mind on the body can be given. Such connections are, however, much more subtle than is commonly supposed. The approach of a sick spell is heralded often by a change of mood and of disposition. We are irritable, low spirited and "nervous." The "cold" or the sore throat does not appear until the day following. Certain contagious disorders or mild poisonings are, according to the observations of Bergmann, more easily recognizable by observation of psychic behavior than by the study of clinical symptoms, which fact should be utilized more than it is for the diagnosis. "There are for the physician," he writes, "a great number of observations through which the subtle subjective perception of the patient will furnish important points of evidence, whereas the much coarser objective observations fail completely to accomplish the purpose; for instance, fatigue, weakness of memory, absentmindedness and mental excitement are often subtle indicators when it is impossible to recognize a poison by chemical means, a cell injury through an anatomic examination or a disturbed functioning as an objectively discoverable manifestation. Therefore, the subjective complaint of the patient often becomes for the internist the most important, and, not infrequently, the only evidence of illness." These foreshadowings of sickness may consist of an exalted mood and increased activity; for example, in alcoholic intoxication or following an injection of morphine. Another example: A senior student in the "gymnasium" is happy over the fact that he no longer needs to resort to strong coffee in order to keep awake. His drowsiness has disappeared, and he memorizes his odes from Horace with great ease, whereas previously it required great effort. A few days later he dies from epidemic encephalitis. The increased memorizing capacity was only a foreshadowing of a grave brain disorder. The study of personal character is an inherent part of the study of the constitution, and it is important for the physician to know how his patient "steps" in both a literal and a figurative sense of the word; how he shakes hands; how the most delicate motions are revealed as graphic strokes in the handwriting; in short, even how he clears his throat and expectorates. From the study of the physical bases of psychic moods, certain conditions may be more accurately understood; for instance, the idea of convalescence. So long as all that was known was that the patient was no longer ill but was not yet well either, the physician had to be content with such complaints during convalescence as: "I am tired, weary, have no desire to work." Now, however, it has been shown that, for weeks after a sore throat or pneumonia, when temperature, blood picture and other reactions have long become normal, the cell composition of a blister produced artificially on the skin is still abnormal; that is, it still presents a changed behavior in the organism. Thus a biologic explanation is available for the proverbial irritable mood of the convalescent patient.

Lead Poisoning from Tap Water

Lead poisoning from the drinking water has caused considerable anxiety in Leipzig. Professor Kruse and Dr. M. Fischer, who are connected with the Hygienisches Institut at the University of Leipzig, made a thorough investigation of the regrettable occurrence and have published a preliminary report of their conclusions, in the *Deutsche medizinische Wochenschrift*. Thus far, about 250 patients have received treatment, and it has been established that only persons who have a predisposition for lead poisoning become ill from the ingestion of lead with the drinking water. The water contains considerable lead not only after standing a long time in the water pipes but often after it has been in the pipes from one to four hours, so that water drawn from the pipes during the day may be dangerous if one does not allow it to run for a short time before using it. The water in the section of the city in which the cases of poisoning occurred was found to contain much larger quantities of lead than ordinary tap water has. The quantity ranged between 2 and 25.6 mg., the average being about 5.3 mg. The water is derived from two sources, recently reorganized. The present water supply in Leipzig attacks lead pipes much more intensely than the former supply, and the new lead pipes, from the standpoint of durability, do not stand up as well as those formerly employed. While the reasons for the recent epidemic of lead poisoning are not yet entirely cleared up, the assumption appears justified that the unfortunate event can be explained only by the coincidence of numerous factors difficult to weigh. The residents of the section of the city in question are able to protect themselves at present only by drawing off one or two pailfuls of water before beginning to use it. A further reorganization of the water system is, however, in progress and will be completed shortly whereby the whole water supply of Leipzig will be neutralized by solution of calcium hydroxide, thus removing all danger from lead poisoning from tap water.

The Determination of Blood Groups and the Courts

The Württemberg ministry of justice calls attention to the fact that, in cases involving fatherhood and maintenance obligation, the courts, not infrequently, put the child's mother under oath as to her testimony and then enter an order for an examination of blood groups. To prevent perjury, the courts are now advised in such cases to reverse the order and to proceed first with the determination of the blood groups and then, if necessary, to place the child's mother under oath. In this manner, by holding before the witness the results of the blood group determination, one can frequently prevent statements being sworn to that do not harmonize with those results. This order of procedure is in accordance with the trend that is becoming more and more evident in the prosecution of justice in the German courts whereby, through more skilful handling of the taking of evidence, perjury may be prevented.

Continuation of the International Hygienic Exposition in Dresden

It had been the intention to close the Internationale Hygiene-Ausstellung Dresden, October 12. In spite of bad weather, which cut down the attendance, nearly three million persons visited the exposition. But, in order to score the success in Germany and in foreign countries to which the exposition is entitled, a much greater attendance is needed. A large number of investigating commissions have visited the exposition. Since, in 1931, few, if any, large expositions are announced for Germany next year, the Dresden exposition will be opened again in 1931. The famous exhibit of modern hospitals and their equipment will be preserved complete. Many of the set-ups will be reorganized, and other set-ups entirely new will be added. Also the foreign exhibit, which is housed in the Staatenhaus, will be enriched by the addition of material, much of which, owing to the short time allowed for the preparation of the exposition of 1930, could not be assembled. Considerable material from America has already been promised. Another new set-up will be a general survey of Catholic missionary enterprises in foreign countries. It is the intention of the committee to secure a large attendance of the public. A special and regular train service from all parts of Germany and from many points in foreign countries will therefore be organized.

Seventieth Anniversary of Berlin Medical Society

October 29, the Berliner Medizinische Gesellschaft convened in special assembly in honor of the seventieth anniversary of its existence. The society arose in 1860 through the merger of two older societies, under the chairmanship of the founder of modern ophthalmology, Albrecht v. Graefe. The chairmanship then passed to the director of the Chirurgische Universitätsklinik, Bernhard v. Langenbeck; then to Rudolf Virchow; Ernst v. Bergmann, surgeon: Senator, internal clinician; Orth, pathologic anatomist, and Kraus, internist. Since its foundation, the society has been the scientific center of the medical profession of Berlin. The transactions of the Berliner Medizinische Gesellschaft receive widespread attention throughout Germany and are noted in foreign countries. The present chairman, Geheimrat Goldscheider, gave, in his address, a survey of the development of the art of healing during the past seventy years as reflected in the activities of the society, and then digressed to the present reduced economic status of physicians. After the secretary, Professor Adam, had given a survey of the history of the society, Prof. Martin Hahn, hygienist at the University of Berlin, delivered an address on "Hygiene of a Metropolis." He brought out that the mortality in the large cities, as far as acute infectious diseases are concerned, is not higher than in the country as a whole. One of the most difficult problems in the hygiene of large cities is the increased mortality of men of the 30 to 70 age groups, in contrast with the mortality of women of the corresponding ages. This greater mortality of men in these years of full earning capacity is doubtless due chiefly to alcoholism, tuberculosis, venereal diseases and occupational injuries. If we are to continue to compensate for the decline in the birth rate by reducing the mortality in the large cities, we must not stop with the combating of acute infectious diseases but must attach equal importance to the fight against the chronic injuries of metropolitan life, which is, to be sure, even more difficult. The first step in this direction is the improvement of housing conditions. The provision of an adequate supply of water for metropolitan areas is becoming an increasingly difficult problem. Since the large volume of water taken constantly from the Spree area, near Berlin, is gradually impairing navigation, and the lowering of the water level of the Spree leads to contamination of its waters, a collection of the water in the lakes of the Spree forest or the installation of a powerful pumping plant on the banks of the Oder will soon become necessary, to maintain Berlin's water supply. The demand for water, caused by the growth of industries, the increase in the number of private bathrooms and the more widespread use of hot water installations with the accompanying waste of water, has led naturally to an increase in the amount of refuse water, which can no longer be deposited on the fields adjacent to Berlin. For that reason, Berlin is constructing a large purification plant.

It would be well for the youth of the large cities if the many school reforms were not tried out on them, for they are already inclined to be precocious. Also the numerous diversions and stimulations in the form of field excursions, lectures, motion pictures, "shows," theatricals, journeys even to foreign countries, offered to children nowadays go beyond their needs, since they are naturally mentally active and inclined to be somewhat "nervous." What they need for a healthy mental and physical development is more concentration and better opportunities to participate in family life.

In closing, Hahn emphasized that an annual voluntary examination of supposedly healthy persons would contribute greatly toward the early recognition of chronic injuries incident to the life of a large city and would tend to preserve the sense of responsibility that still remains after the decline of recent years.

Who Should Hold the Title of "Professor"?

The executive committee of the Verband der Krankenhausärzte Deutschlands (league of hospital physicians of Germany) took up recently with the Prussian minister of public welfare the subject of the bestowal of the title of "professor" on physicians who are directors of hospitals and brought out that the term "professor" should be applied only to such persons as hold an official teaching position. That principle is widely neglected, even by the government itself. Since the title of "professor" in the mind of the people is supposed to evidence more than ordinary scientific qualifications, many eminent hospital directors who did not attain their post by way of a university career suffer a hardship both from the ideal and from the economic point of view. Many hospital directors who are not connected with any particular institution of learning are employed by the state for the training of medical practitioners and for the holding of graduate courses. The league requested, therefore, that the title of "professor" be bestowed again on hospital physicians with suitable scientific attainments. Under date of August 15, the Prussian minister of public welfare replied that he had frequently taken the stand that the service title of "professor" should be given physicians who are directors of hospitals but that, in view of the present wording of the constitution, there was no way in which that objective could be reached.

Capillaries and Physiognomy

Professor Bettmann, dermatologist, presented recently to the Heidelberg Academy of Sciences the results of his researches on the relations of the capillary forms of the lip to the physiognomy. According to his observations, the type of the capillaries of the lower lip has a direct relation to rest and forms of motion, tension and release of tension, types of development, age, sex, constitution; condition of the teeth, jaws, facial muscles, muscles of mastication; speech, tone and play of the features. The physiognomy is strongly influenced by the mucous membrane of the lip. The type of the capillaries is simple, scant and defective in primitive races in which play of the features is wanting; also in mental patients, and in aged persons it is more complex and more fully developed in actors, elocutionists, mimics, professional whistlers and players of wind instruments.

Anniversary of Society for Promotion of Graduate Instruction

The Dozentenvereinigung für ärztliche Fortbildungskurse of Berlin celebrated, October 16, its fiftieth anniversary. By providing opportunities for graduate instruction in medicine the society has contributed to the uplift of public health, and by attracting to Berlin at least an equal number of foreign physicians it has increased the prestige and the scope of the knowledge of German scientists. The society has always been ready to assume the task of cultivating personal relations between foreign and German physicians. The ceremonies, held in the Kaiserin-Friedrich-Haus, were opened with an address by Prof. Dr. Munk, the chairman of the society. Professor Adam, director of the Kaiserin-Friedrich-Haus, gave a survey of the history of the society.

Marriages

William Andrew Brumfield, Jr., Staten Island, N. Y., to Miss Elizabeth Mitchell Fagg of Blacksburg, Va., October 7.

Douglas Fairbanks Love, New Market, Va., to Miss Dorothy Anne Settle of Amherst, October 16.

Patrick Henry Winston, Virgilina, Va., to Miss Lillian Frances Gayle of Stafford County, October 8.

Charles Henry Henderson, Richmond, Va., to Miss Mary Virginia Chiles, Fredericksburg, October 1.

William Nash Thompson, Stuart, Va., to Miss Opal Norene Ingram, in Danville, October 6.

Irvine Heinly Page to Miss Beatrice Delamater Allen, both of Melrose, Mass., October 28.

John I. Chorlog, Madison, Wis., to Miss Hazel I. Sheets of Clifton Forge, Va., recently.

Rufus Marion DeHart, Floyd, Va., to Miss Rachel Bass of Richmond, October 21.

Deaths

William Mulholland Beach ⊕ Pittsburgh; Jefferson Medical College of Philadelphia, 1889; member of the American College of Surgeons; chairman of the Section on Gastro-Enterology and Proctology, American Medical Association, 1918-1919; lecturer on anatomy at the University of Pittsburgh, 1889-1892; past president and secretary of the American Proctologic Society; an organizer and for many years on the staff of the Presbyterian Hospital; on the staff of the Southside Hospital, 1906-1911; member of the board of trustees of the Waynesburg (Pa.) College; aged 71; died, October 23, of bronchopneumonia.

Junius Clarkson Hoag, Chicago; Chicago Medical College, 1882; member of the Illinois State Medical Society; member of the American College of Surgeons; at one time instructor and demonstrator of obstetrics at his alma mater; past president, vice president and secretary of the Chicago Medical Society; on the staffs of St. Luke's Hospital, Mercy Hospital and the Provident Hospital; aged 72; died, October 25, of carcinoma of the ascending colon.

Archibald Neil Sinclair ⊕ Honolulu, Hawaii; University of Glasgow Medical Faculty, Glasgow, Scotland, 1894; member of the American College of Physicians and the Society of American Bacteriologists; past president of the Territorial Board of Medical Examiners, and the Hawaii Territorial Medical Society; medical director of the Leahi Home; aged 59; died, October 21, of heart disease.

Andrew Bartholomew Somers, Omaha; Medical Department of Columbia College, New York, 1872; member of the Nebraska State Medical Association; professor emeritus of obstetrics, University of Nebraska College of Medicine; past president of the Omaha-Douglas County Medical Society; formerly member of the state board of health; aged 83; died, October 23, of uremia.

Joseph Calvin Reifsnyder ⊕ Scranton, Pa.; Jefferson Medical College of Philadelphia, 1888; veteran of the Spanish-American War; past president of the Lackawanna County Medical Society and the Pennsylvania Public Health Association; county medical director; on the staff of the Lackawanna County Tuberculosis Hospital; aged 62; died, October 23, of heart disease.

Charles Evart Paddock ⊕ Chicago; Chicago Medical College, 1891; formerly assistant professor of obstetrics, Rush Medical College, and professor of obstetrics, American Medical Missionary College; member of the American College of Surgeons; aged 71; on the staff of St. Luke's Hospital, where he died, November 1, of heart disease.

Christopher J. Woolway, Duluth, Minn.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1875; formerly superintendent of the St. Louis County Almshouse and Tuberculosis Pavilion, and the Deerwood (Minn.) Sanatorium; aged 76; died, October 28, in a local hospital, of angina pectoris, chronic endocarditis and gastritis.

Joseph Seal Neff, Narberth, Pa.; Jefferson Medical College of Philadelphia, 1875; director of the department of public health and charities, 1907-1914; attending physician to the Philadelphia General Hospital, 1882-1889; director of the Jefferson Medical College Hospital, 1893-1907; aged 76; died, November 4, of heart disease.

James Alexander Anderson, Smiths Falls, Ont., Canada; Trinity Medical College, 1903; served during the World War; formerly member and chairman of the board of education, member of the board of health and mayor of Smiths Falls; on the staffs of the Public and St. Francis hospitals; aged 60; died, August 4, in Toronto.

Mary Vincent O'Callaghan, Worcester, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1885; member of the Massachusetts Medical Society; on the staff of St. Vincent Hospital; aged 78; died, October 28, in the City Hospital, of injuries received when she was struck by an automobile.

William Ford Blake, San Francisco; Cooper Medical College, San Francisco, 1903; member of the California Medical Association, the American Academy of Ophthalmology and Oto-Laryngology and the American College of Surgeons; aged 57; died, August 28, in Palo Alto, of chronic nephritis.

Robert W. Stewart, New York; Medical College of Ohio, Cincinnati, 1882; at one time professor of clinical obstetrics, Miami Medical College, Cincinnati; formerly on the staff of the Jewish Hospital, Cincinnati; aged 76; died, November 1, of arteriosclerosis and acute dilatation of the heart.

Charles Bledsoe Crute, Farmville, Va.; University of the South Medical Department, Sewanee, 1903; member of the Medical Society of Virginia; served during the World War; aged 50; died, October 9, in the Memorial Hospital, Richmond, of injuries received in an automobile accident.

John Alfred Jackson, Los Angeles; Trinity Medical College, Toronto, Ont., Canada, 1897; member of the California Medical Association, and the Associated Anesthetists of the United States and Canada; on the staff of the Los Angeles County Hospital; aged 62; died, August 26.

James Lawrence Maupin, Fresno, Calif.; St. Louis College of Physicians and Surgeons, 1890; member of the California Medical Association, and the State Board of Medical Examiners; on the staff of the Burnett Sanitarium; aged 62; died, October 1, of cerebral hemorrhage.

Allen Mason King, Jacksonville, Ill.; Barnes Medical College, St. Louis, 1902; member of the Illinois State Medical Society; served during the World War; aged 54; on the staff of the Passavant Memorial Hospital, where he died, September 21, of pneumonia.

John Henry Coughlin ⊕ New York; Medical Department of the University of the City of New York, 1889; formerly clinical professor of medicine, Fordham University School of Medicine; on the staff of the Gouvernour Hospital; aged 76; died, October 19, in Atlantic City, N. J.

Philip Patrick Moore, Gloucester, Mass.; Harvard University Medical School, Boston, 1899; member of the Massachusetts Medical Society; formerly city physician, school physician and chairman of the board of health; aged 65; died, in October.

Arthur E. Prince ⊕ Springfield, Ill.; Medical Department of the University of the City of New York, 1877; medical superintendent of the David Prince Sanitarium; aged 76; died, October 21, of pulmonary carcinoma and acute parenchymatous nephritis.

Frank V. Winstead, Dixon, Ky.; University of Louisville School of Medicine, 1892; member of the Kentucky State Medical Association; aged 62; died, October 12, in the Walker Hospital, Evansville, of injuries received in an automobile accident.

David Currie Ross, San Diego, Calif.; Dallas (Texas) Medical College, 1903; Chicago Hospital College of Medicine, 1914; aged 57; died, September 3, of pneumonia and traumatic pyemia, as the result of injuries received in an automobile accident.

Samuel J. Hunkin ⊕ San Francisco; University of California Medical School, 1890; at one time professor of orthopedic surgery, Oakland College of Medicine and Surgery; formerly on the staff of the Children's Hospital; aged 66; died, October 11.

William Amos Mansfield, Barberton, Ohio; Cleveland University of Medicine and Surgery, 1895; health officer; on the staff of the Citizens Hospital; aged 71; was found dead, November 1, in his garage, of carbon monoxide poisoning.

George Dalton Grimes, Houston, Texas; Jefferson Medical College of Philadelphia, 1902; member of the State Medical Association of Texas; aged 52; died, July 29, in St. Joseph's Hospital, of streptococcic meningitis.

Charles Lee Blanks, Tulsa, Okla.; Beaumont Hospital Medical College, St. Louis, 1892; member of the Oklahoma State Medical Association; aged 62; died suddenly, August 4, near Elvins, Mo., of heart disease.

Samuel Henry Hairston ⊕ Meridian, Miss.; Louisville (Ky.) Medical College, 1904; member of the American College of Surgeons; aged 50; died, October 20, in the Meridian Sanitarium, of coronary thrombosis.

Robert Randolph Grant ⊕ Plaquemine, La.; Medical Department of the University of the City of New York, 1891; president of the Iberville Parish Medical Society; aged 64; died, October 9, of pneumonia.

Orlando B. Longenecker, Dayton, Ohio; Hospital College of Medicine, Louisville, 1884; aged 71; died, October 28, of glandular hyperplasia of the prostate gland, acute urinary retention and paralytic ileus.

John Frederick Escher, San Diego, Calif.; Kentucky School of Medicine, Louisville, 1878; aged 86; died, September 18, of chronic nephritis, arteriosclerosis, senile dementia and valvular heart disease.

James A. Summerlin ⊕ Pelham, Ga.; Gate City Medical College, Texarkana, Texas, 1907; past president of the Colquitt County Medical Society; aged 52; died, October 7, of cerebral hemorrhage.

William Grant Casenburg, Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1897; member of the Tennessee State Medical Association; aged 57; died suddenly, October 18, of heart disease.

Emmett James Howell, Eureka, Utah; Rush Medical College, Chicago, 1905; aged 55; died, June 6, in St. Mark's Hospital, Salt Lake City, of pulmonary tuberculosis and tuberculous spondylitis.

George G. Leist, Circleville, Ohio; Medical College of Ohio, Cincinnati, 1891; member of the Ohio State Medical Association; aged 74; died, September 10, of intestinal obstruction.

Abraham Bassman ⊕ St. Louis; National University of Arts and Sciences Medical Department, St. Louis, 1914; aged 50; died, September 16, in the Jewish Hospital, of bronchopneumonia.

Frank Albert Decker, Reardan, Wash.; College of Physicians and Surgeons, Keokuk, Iowa, 1919; served during the World War; aged 34; was killed, October 2, in an automobile accident.

Manuel Justo, Welch, W. Va.; Johns Hopkins University School of Medicine, Baltimore, 1923; aged 36; died, October 20, in St. Luke's Hospital, Bluefield, of carcinoma of the lung.

Charles Samuel Sakowitz, New Haven, Conn.; Yale University School of Medicine, New Haven, 1928; aged 25; died, October 7, in Saranac Lake, N. Y., of pulmonary tuberculosis.

Clara Eugenia Finney ⊕ Modesto, Calif.; Stanford University School of Medicine, San Francisco, 1920; aged 45; died, August 17, of skull fracture received in an automobile accident.

Jerome Augusta Boarman, Kansas City, Mo.; University Medical College of Kansas City, 1896; aged 69; died, September 12, in St. Joseph's Hospital, of carcinoma of the esophagus.

James Franklin Forehand, Bardwell, Texas; Memphis (Tenn.) Hospital Medical College, 1901; aged 75; died, September 23, of carcinoma of the left cheek and of pneumonia.

Robert Wilson Selby ⊕ Dover, Pa.; University of Michigan Medical School, Ann Arbor, 1913; aged 45; died, October 15, in the Johnston-Willis Hospital, Richmond, of septicemia.

John Frederick Miller, Andover, S. D.; University of Illinois College of Medicine, Chicago, 1905; aged 53; died, November 11, in the Peabody Hospital, Webster, of pneumonia.

Albert George Wright ⊕ Fenton, Mich.; Detroit College of Medicine, 1896; member of the school board; aged 65; died, October 14, in the Hurley Hospital, Flint, of pneumonia.

Elbridge Albert McIntyre, Chicago; University of Illinios College of Medicine, Chicago, 1927; aged 28; was found dead, November 7, in Mendota, Ill., of a gunshot wound.

Freeman A. Jones, Lansing, Mich.; Michigan College of Medicine, Detroit, 1881; member of the Michigan State Medical Society; aged 74; died, October 3, of diabetes mellitus.

John C. Thomasson, Georgetown, Ky.; Pulte Medical College, Cincinnati, 1889; for twelve years member of the school board; aged 73; died, October 4, of chronic nephritis.

William Alexander Hamilton, Paullina, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1900; aged 58; died, October 11, of heart disease.

Mattie Estella Cox, Rosemead, Calif.; Hahnemann Medical College and Hospital, Chicago, 1903; aged 68; died suddenly, recently, in Franklin, Ind., of heart disease.

Robert Smith Burket ⊕ Denver; University of Colorado School of Medicine, Denver, 1913; aged 41; died, recently, in St. Joseph's Hospital, of pulmonary tuberculosis.

Albert Griffith Eyestone ⊕ Gibsonburg, Ohio; Baltimore Medical College, 1900; served during the World War; aged 60; died suddenly, October 10, of heart disease.

William MacDonald Adams, Toronto, Ont., Canada; University of Western Ontario Medical School, London, 1912; aged 54; died recently, in St. Joseph's Hospital.

Robert B. Hiller, Thebes, Ill.; St. Louis College of Physicians and Surgeons, 1893; member of the Illinois State Medical Society; aged 69; died, October 4, of senility.

Eloy V. Pineda ⊕ Manila, P. I.; University of the Philippines College of Medicine, Manila, 1920; on the staff of the San Lazaro Hospital; aged 35; died, July 11.

William Henry Bates, Brooklyn; Medical Department of the University of the City of New York, 1863; aged 88; died, October 19, of carcinoma of the esophagus.

Guy Edward Krolick, Chicago; Chicago College of Medicine and Surgery, 1913; served during the World War; aged 41; died, November 9, of heart disease.

William Thomas Hamilton ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1887; aged 66; died, October 15, of myocarditis and chronic nephritis.

Henry Bergstein, San Francisco; Medical College of the Pacific, San Francisco, 1872; aged 83; died, August 10, of coronary sclerosis and chronic myocarditis.

John A. Lyng ⊕ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1890; aged 64; died, September 27, of coronary sclerosis.

Edwin William Eberlein ⊕ St. Louis; Medical Department of Washington University, St. Louis, 1899; aged 54; died, November 1, of chronic myocarditis.

Charles Albert Cantrell ⊕ Plainview, Texas; Barnes Medical College, St. Louis, 1900; aged 57; died, August 6, in a local hospital, of cerebral hemorrhage.

James Byars, Austin, Texas; Medical College of Ohio, Cincinnati, 1882; Confederate veteran; aged 83; died, September 15, of a self inflicted bullet wound.

W. M. Curtis, Calhoun, Ga.; Atlanta Medical College, 1875; Confederate veteran; formerly a druggist; aged 84; died, September 30, of bronchopneumonia.

Adelheim Bernhard ⊕ Milwaukee; Kaiser-Wilhelms Universtität, Strassburg, Alsace-Lorraine, Germany, 1886; aged 69; died, October 17, of heart disease.

John B. McMackin, Iron City, Tenn.; Vanderbilt University School of Medicine, Nashville, 1890; aged 68; died, October 17, of cerebral hemorrhage.

Frederick Forbes Smith, Granville Ferry, N. S., Canada; Jefferson Medical College of Philadelphia, 1895; aged 63; died, July 17, of cerebral hemorrhage.

John Benton S. Egee, Philadelphia; Hahnemann Medical College of Philadelphia, 1875; aged 75; died, October 29, of portal cirrhosis of the liver.

Garrett Van Zandt, Chicago; Rush Medical College, Chicago, 1883; aged 73; died, October 24, of carcinoma of the lower lip and myocarditis.

Clara E. Jeter, Indianapolis; Beach Medical Institute, Indianapolis, 1886; aged 75; died, October 28, as the result of an injury received in a fall.

Jesse Cameron Pickett ⊕ San Francisco; Cooper Medical College, San Francisco, 1907; aged 51; died, October 6, in Ross, of rupture of the aorta.

Joseph Anthony Ebel ⊕ St. Louis; St. Louis University School of Medicine, 1920; aged 34; died, October 30, of chronic interstitial nephritis.

George Septimus Rennie, Hamilton, Ont., Canada; Trinity Medical College, Toronto, 1889; chief coroner; died, October 13, of pneumonia.

George Norman Powell, Letohatchee, Ala.; Medical College of Alabama, Mobile, 1896; aged 67; died, October 9, of arteriosclerosis.

John Nathaniel Fain, Greenville, Texas; Vanderbilt University School of Medicine, Nashville, 1891; aged 62; died, September 21.

Saunders James Thompson, Oklahoma City, Okla.; Meharry Medical College, Nashville, Tenn., 1916; aged 36; died, June 23.

Mack M. Colley, Memphis, Tenn.; Meharry Medical College, Nashville, Tenn., 1908; aged 54; died, July 13, of heat prostration.

Michael H. Houseworth, Mason, Ohio; Miami Medical College, Cincinnati, 1878; aged 73; died, October 23, of pneumonia.

John Dixon Webster, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1898; aged 73; died, August 11.

Lester E. Walker, Norwich, Conn.; New York Homeopathic Medical College, 1898; aged 57; died, June 14, of acute nephritis.

George W. Stewart, Muskogee, Okla.; Memphis (Tenn.) Hospital Medical College, 1890; aged 74; died, October 4, of hepatitis.

Albert Rogers, Seabeck, Wash.; Starling Medical College, Columbus, 1895; aged 63; died, August 4, of retroperitoneal sarcoma.

Webb J. Kelly, Piqua, Ohio; Bellevue Hospital Medical College, 1880; aged 73; died, September 21, of chronic nephritis.

Louis M. Coleman, Lake Charles, La. (licensed, Louisiana, 1896); aged 63; died, October 17, of nephritis.

C. T. Barker, Gate City, Va. (licensed, Virginia, by exemption); aged 77; died, October 6, of nephritis.

Bureau of Investigation

SOME MISCELLANEOUS "SPECIALISTS"

How Some Physicians Appraise the Intelligence of Other Physicians and the Public

The three schemes about to be described are being worked, at the present time, on the profession and the public, respectively. Each is operated by a physician:

Dr. F. J. James, Paris, Ill.—This man is circularizing physicians. He states in his circular-letter that he has been in the general practice of medicine for twenty years and has developed three *outstanding prescriptions, which he describes* as follows:

> "*No. 1.—Treatment for Renal Dropsy.* This prescription will cure 75 per cent of the cases, will remove the edema, and will restore the kidney to normal function *and in my experience has cured 98 per cent* of all cases coming to my attention, either acute or chronic. It is also very effective in Cardiac Dropsy.
>
> "*No. 2.—Acid Stomach and Fermentation.* This prescription will relieve the condition after the third dose. The coat will leave the tongue which the physic does not get rid of. This is not a soda preparation and one gallon can be made in your office at a cost not to exceed twenty cents. My experience has been that it will absolutely take care of 95 per cent of all stomach cases.
>
> "*No. 3.—An Absolute Specific for Acne.* You no doubt have had experience with this disease and have found how stubborn it is to handle. I absolutely guarantee this prescription to take care of it, 100 per cent."

Dr. James then states that it is not his desire to commercialize these prescriptions, but he feels that it is his duty to impart the information to his "brother physicians." Those who are interested in having them, should mail him a check for $3 and he will send the prescriptions, with instructions for their application. Dr. James adds, as an afterthought, that the prescription for "Acid Stomach and Fermentation" has in itself, for several years, paid all of his office expenses! Those who send the $3 get the following prescriptions:

"Spirit of Juniper	min.	45
"Vinegar Squill	min.	45
"Potassium Acetate	gr.	41
"Infusion Digitalis	min.	300
"Apocynum (Lloyds)	min.	16"

This is the combination that, according to Dr. James, has cured 98 per cent of all cases of renal dropsy, acute or chronic, that have come to his attention!

"Prescription No. 2" has at least the virtue of not being a polypharmacal monstrosity. It is nothing more marvelous than six ounces of pure hydrochloric acid in one gallon of distilled water, with some "red vegetable coloring to improve appearance." This is the prescription that has paid the doctor's office expenses for several years!

"Prescription No. 3," the "Absolute Specific for Acne," is:

"Acidi Salicylic	gr.	5
"Resorcin	gr.	10
"Phenol (90 per cent)	min.	20
"Sulphuris	dr.	1
"Zinci Oxidi	dr.	2
"Ungt. Aquae Rosae Qs	oz.	2
"M. Ft. Ungt."		

Dr. John W. Nelson, Jamestown, N. Y.—This man circularizes laymen in various parts of the country under the name, "*A. E. Daley," from Post-office Box 804,* Jamestown, N. Y. The "come-on" circular states that "A. E. Daley" is the fictitious name adopted by a physician in good standing in the American Medical Association and in the state, county, and local medical societies! He admits that the business is "possibly not strictly professional." The general tenor of the circular is to the effect that men who cannot perform sexually to the satisfaction of themselves and their wives should write to "Daley" for special information, which would then be sent. The recipient is told that after receiving this information, he is expected to send "Daley" $10.

Those who write to "Daley" receive another printed circular and a small rubber band, such as is purchasable in any stationery shop. The instructions are to put the band twice around the penis as high as possible, just before intercourse! The second circular also states that as soon as "A. E. Daley" receives the $10, he will reveal "some facts of great importance" that he has found from an "intensive study of the anatomy and function of our sexual organ." Those that send the $10 get a *mimeographed sheet* of four short paragraphs, conveying *no* information that is *not* the public property of every individual who has reached maturity.

Dr. B. J. Cline, Poplar Bluff, Mo.—*This is another* physician who has prescriptions to sell. His price, also, is $3, but he gives twice as many prescriptions for the money as does Dr. James. Dr. Cline's first prescription is described as one that "absolutely controls Whooping Cough almost 100 per cent and very cheap to make." He also throws in an "injection treatment" for the same disease. His second prescription is for acute or chronic poison ivy inflammation. This, he assures *us, cures in 99 per cent of the cases and only costs 25* cents a gallon to make! Prescription No. 3 is for sciatica and is also "good for any kind of neuralgia"; this, too, is inexpensive. The fourth prescription is an enema for the treatment of pneumonia; prescription No. 5 is for hay fever and while Dr. Cline does not claim that this permanently cures, he asserts that it will absolutely control the disease through its season, which most hay fever sufferers would doubtless consider as good as a cure. The sixth and last prescription is for venereal warts, and said to be a caustic salve that is "very easy to make and very cheap."

Dr. Cline, unlike Dr. James, makes no claims to originality in these prescriptions; he admits they are not original with him. He states that through a large company, he has access, indirectly, to every medical journal published in the world, "which costs me a nice sum, and I am giving you the best gleanings up to the minute." It appears, also, from the material that Dr. Cline sends out, that he has, in addition to these six prescriptions, a "patent medicine"—"B-J-C Capsules" of the Cline Medicine Company, Poplar Bluff, Mo. The capsules are said to contain sandalwood oil, copaiba, haarlem oil, and 2½ grains of salol.

Such incidents as these just detailed *do not redound* to the credit of the medical profession. It is especially disheartening, from the standpoint of scientific medicine, that there should be a sufficient number of physicians to make it a profitable thing for Drs. James and Cline to offer to sell prescriptions to men who are already graduates of medical schools and engaged in the practice of medicine.

As to the scheme exploited by Dr. John W. Nelson of Jamestown, N. Y., it is repugnant alike to the ideals of business and of medicine!

Correspondence

EDUCATION OF THE DIABETIC PATIENT

To the Editor:—Two thousand questionnaires were recently sent out for me at my request by the Chicago Dietetic Supply Company to its patrons. Five hundred similar ones were sent to names of diabetic patients of no known connections. Practically all were in communities smaller than a hundred thousand, and rural localities were given preference.

About 12 per cent of replies were received, but it should be realized that, as often happens, this is a selective and not a representative minority, they being mostly those proud of their diabetic doings that reply at all. Comparisons are admissible between members of the reporting group, but inferences may not be drawn as to the diabetic population at large.

For instance, 70 per cent of those replying use insulin, although it is most unlikely that even 15 per cent of the assumed million in the United States are using insulin. But it is significant as to what the lone practitioner is doing, single handed, that, of these 70 per cent using insulin, 76 per cent learned at home, never having been at a clinic, yet with exactly one patient reporting results less than "good."

It should be noted that 85 per cent of these insulin patients have been on a quantitative diet, which figures certainly do not apply to insulin users in general, but which do somewhat explain *the uniformly good results in* this group.

Clinic-training shows its value, 83 per cent of clinic-trained patients remaining sugar-free, as against 58 per cent of home-trained.

Of those replying to why more patients are not receiving modern treatment, 70 per cent blame "ignorance," not specifying whose; 60 per cent—unflattering as it may be—blame the incompetence or, more often, the indifference of available physicians, many naming all three factors. Forty-five per cent arraign the expense, especially the cost of insulin. Thirty per cent fear that insulin is habit-forming; 23 per cent fear reactions, though only 11 per cent fear the needle. Eighteen per cent have tried advertised "cures," mostly with zero results, though a few fondly think they "help some."

The value of diabetic manuals is strikingly shown; 70 per cent of book-owners are keeping sugar-free, as against 38 per cent of the bookless; and yet, 41 per cent of these people have never been advised to get a book and 16 per cent have not even seen one. Owners of the divers manuals represented are almost unanimous in the verdict that the books help.

A feeling exists among practitioners, abetted by a few specialists, that diabetic treatment is a specialty, not lightly to be trifled with by the humble family doctor, as he is liable to do more harm than good. To get current opinion, sixty questionnaires were sent out to eminent internists. Fifty-four replies were received, and 90 per cent agree. They concur that it is practicable for even the small-town doctor to treat diabetes, but not without the home-testing of urine, or without the patient having a book. They regard routine use of insulin without a quantitative diet or without keeping sugar-free as liable to prove eventually disastrous.

Many of these internists also filled in patient's questionnaires in a manner representative of the typical diabetic patient in their communities. Unanimity here is also of unusual degree. They state that in 1930 the average diabetic patient is not under treatment but has dabbled with "cures"; his urine is not home-tested but always shows sugar. Though not afraid of the needle, he has never used insulin, for he feels that when he once starts that, he is about done for! He has never been on a weighed or measured diet, nor has he ever seen or been advised to get any of the diabetic manuals. He would like elementary diabetic instruction classes held near him.

DON H. DUFFIE, M.D., Central Lake, Mich.

PRIORITY IN TREATMENT OF BROMIDE INTOXICATION

To the Editor:—In THE JOURNAL, October 25, Weidman under this title gives credit to Wile and his co-workers for being the pioneers in the application of the biologic fact that the administration of chlorides hastens the elimination of bromides.

Permit me to draw your attention to the fact that prior to or at least simultaneously with Wile, I recommended the salt treatment for bromism. At the annual meeting of the American Dermatological Association in Washington in 1922 I stated (*Arch. Dermat. & Syph.* **6**:559 [Nov.] 1922) in a discussion of a paper on drug eruptions: "The facts mentioned by Dr. Wile, that chlorides replace the bromides in the body, has induced me for many years to give patients with bromide eruption either a diet rich in salt or to administer calcium chloride by mouth." Dr. Wile in closing the discussion on his paper on bromide exanthems answered (p. 563): "Dr. Goldenberg's discussion brings out a therapeutic suggestion of great value which we have had occasion to employ, and which is very instructive. He said he had been accustomed to give patients with a bromide rash sodium chloride. . . ."

Whoever was the originator of this mode of treatment, I do not know. I do not claim any originality or priority. I have adopted it from the late Dr. Julius Rudisch, with whom I frequently discussed the topic during our rounds at Mount Sinai Hospital, and I believe it is not more than fair that our names should be included in mentioning the authors of the salt treatment in bromism.

HERMANN GOLDENBERG, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SCARLET FEVER IN THE NEGRO

To the Editor:—I have a patient, a Negro boy, aged 14, with a temperature of 100, sore throat, headache and itching skin. I suspect scarlet fever since there is some around here. How does one tell when a Negro has scarlet fever when the skin is so dark the scarlet rash cannot be seen?

R. E. GRAY, M.D., Eldora, Iowa.

ANSWER.—As a rule, it is not true that scarlet fever rashes cannot be seen in Negro patients. On the contrary, the rash can usually be seen without difficulty. Its color will vary from the usual one of scarlet fever in light patients to an increasingly bluish tint in the darker skins. In quite dark skins the compression of the skin with a glass slide is an aid in dispelling the hyperemia and in bringing out the contrast of rash with normal skin color.

In addition to the rash the usual symptoms of diagnostic value in others apply equally well to the Negro.

Sore throat, accompanied by nausea and vomiting, is always suggestive of scarlet fever.

When there is a question of scarlet fever in either Negro or white patients a culture on blood agar plates which is negative for hemolytic streptococci is of value in excluding scarlet fever, and if the absence of hemolytic streptococci is persistent one may be sure that the disease is not scarlet fever.

Of course, if the atrium is a wound as in surgical scarlet fever or the uterus as in puerperal scarlet fever the cultures must be taken from the wound or uterus as well as from the throat. As a rule there is little more difficulty in the diagnosis of scarlet fever in Negroes than in white people and the same diagnostic points apply.

POSTPUERPERAL ENDOCARDITIS — DISULPHAMIN

To the Editor:—I will appreciate any help on the following: 1. A patient, aged 25, was delivered prematurely by midforceps. At 11, she had a severe rheumatic fever leaving her with a mitral stenosis and aortic regurgitation. One vaginal examination under aseptic technic was done in her home. Feces were encountered during the delivery. An unexplained pytexia, not typical of a puerperal septicemia, was finally found to be caused by a positive blood culture, which showed anhemolytic streptococcus, *Staphylococcus aureus* and colon bacillus. It is now almost eight weeks since the delivery and the patient still has a similar chart and seems to be failing gradually. Do you believe this to be a flare-up of her old illness or possibly infection introduced at time of delivery? What would be your course of treatment in view of cardiac complications? 2. Have you any data on the value of disulphamin (American Bio-Chemical Laboratory) as a streptococcocide? Would you classify this case as one of puerperal septicemia or a bacterial endocarditis? Please omit name.

M.D., Massachusetts.

ANSWER.—1. Regardless of whether or not bacterial endocarditis is present now, this condition at first was most likely an exogenous puerperal infection. It is difficult to prove that the entire picture is due to a flare-up of old valvular lesions. The colon bacillus and *Staphylococcus aureus* are nearly always introduced from the outside at the time of delivery. The cardiac complication does not call for a radical change in the usual treatment for puerperal sepsis. Thus far, no specific drugs have been found for this condition, so measures must be used to build up the patient's resistance. These include forcing nourishing food, ample fluids by mouth, rectum and subcutaneously, fresh air, sunlight, sedatives for pain, hypnotics to secure sufficient sleep and rest, tonics, isolation, care of the bowels and bladder, and also proper moral support. Small and repeated blood transfusions are frequently helpful and, in the case cited, digitalis is surely indicated. Antistreptococcus serums and vaccines are usually without value and are sometimes harmful. Occasionally they have apparently produced a cure. Nursing should, of course, not be permitted. From time to time an examination should be made to rule out some surgical complication, such as an abscess, which may arise. The case cited should be classified as one of puerperal septicemia.

2. According to an advertising circular received in March, 1929, Disulphamin is chemically "Amino-Orto-Benzoil-di-Sulfo-Nucleo-Formin-Sodium Bicamforated." According to a circular received in August, 1929, it is chemically "orto-oxibenzoyl-sulphon-nucleino-formol-sodium-tetradimethylamino-antipyrin-bicamphorated." These designations are meaningless to chemists. They resemble other instances of pseudoscientific terminology wherein names of a chemical group, appearing as part of the name of this or that ingredient, are strung along to form an impressive sounding designation. While such imposingly named products have impressed many a medical man, they have usually turned out to be just a mixture of previously known substances. Good evidence should be supplied to show that one or the other designation applies to the product marketed as Disulphamin before this product is given serious consideration by physicians.

The American Bio-Chemical Laboratories, Inc., have not requested an examination of Disulphamin by the Council on Pharmacy and Chemistry nor has the Council given consideration to such a product. The American Bio-Chemical Laboratories have been sending advertising for "Disulphamin" to state medical journals with an inquiry regarding the cost of advertising and this letter is signed by Dr. L. Tomarkin. For some time the Tomarkin Foundation, Inc. (which had Carlos Tomarkin as president), has been exploiting a tuberculosis treatment called Catalysan Tomarkin, stated to have been developed by one Dr. Leandro W. Tomarkin.

GLANDULAR THERAPY OF OBESITY WITH IMPOTENCE

To the Editor:—Please advise me as to the care of this patient: A man, aged 38, weighing 278¾ pounds (126 Kg.), 5 feet 10 inches (178 cm.) tall, came to me, February 25. He was of a definite type of thyroid obesity. He had coarse hair and rough horny skin and was dull and sullen. The pulse was slow (50-60). He had been obese since childhood. His basal metabolism was minus 30. I gave him hygienic instructions, including a reduction diet and exercises. In addition, his medication has been desiccated thyroid (five times the strength of fresh gland) in huge doses, varying from 3 to 15 grains (0.2 to 1 Gm.) daily, depending on his reflexes, nervous irritability, tremor, heart rate and the rapidity of his loss in weight. June 22, he weighed 215 pounds (97 Kg.). I have now found the amount of thyroid which he apparently needs (i. e., from 5 to 6 grains, or 0.3 to 0.4 Gm., daily); by that I mean he does not develop signs of toxicity on this dosage, and if he gets less than this quantity he begins to gain weight rapidly. On this dosage his basal metabolism varies from minus 10 to plus 5. Since June 22, however, which is three months ago, he has held this weight varying from 210 to 220 pounds (95 to 100 Kg.). His skin is fine, the coarse horny texture has entirely disappeared, and his hair is smooth and oily (not so dry and coarse). He is more potent sexually (his wife has commented on this). Mentally, he is dissatisfied with an occupation which he has followed for eighteen years and is preparing himself for a better position. He is not dull and sullen but mentally alert. His obesity is not generalized now. Briefly, the man has lost 60 pounds (27 Kg.) during the first four months of treatment and apparently will not lose further on this type of treatment; without it, however, he begins to gain quickly. As his obesity is not generalized now, it is more of the pituitary type (i. e., his arms, legs and lower thighs, neck and face have little excess fat), but from the breasts to the middle of his thighs he is obese. According to his height, 5 feet 10 inches, I believe he would be better off weighing from 175 to 180 pounds (79 to 82 kg.). In my opinion, this man's thyroid does not secrete sufficiently and he needs medication to correct that. In addition, some other endocrine gland is not acting in harmony (probably the pituitary). If I have given you sufficient data to advise me intelligently, there are several questions I should like to ask. 1. Is it probable that this man will have to continue taking thyroid permanently? 2. Is pituitary therapy satisfactory in this type of case? Should whole gland be given or just anterior lobe? What company's products can you recommend? How is it best administered? What are the signs of overdosage in an adult? Are there any signs of overdosage or toxicity (similar or comparable) to what is found when too much thyroid is given? What dosage is safe to begin with? I am writing to you because of the unconvincing report by the man to whom I referred the patient. I have sent several patients to him since my graduation—he is a former teacher of mine and has the reputation of being an excellent endocrinologist, but the patients resent his high fees and he does not send me sufficiently illuminating reports. Kindly omit name and city, if this is published.

M.D., California.

Answer.—1. While it is possible that this patient ultimately may be able to leave off taking thyroid, the probability, as deduced from the careful statement of the letter, is that he will have to continue taking thyroid permanently.

2. It is quite unlikely that any type of pituitary therapy will be of value in this case. Although there are some reports in the literature, there are few carefully authenticated cases in adults who have shown any relief from pituitary. If it is to be used at all, it would seem that the best preparation is the whole pituitary extract and the dose a rather large one, 0.3 Gm. (5 grains) three times a day. Probably the only benefit from this large dose will be to the manufacturer. The probabilities are that the only way this patient will lose any more weight is by the continuation of the thyroid in association with a low caloric diet.

DERMATITIS FROM CYANIDES

To the Editor:—Would you kindly supply me with the information, if any, as regards any ill effects of a patient working in the cyanide heat treating room of an industrial plant. Is there any characteristic dermatitis resulting from whatever fumes might come from cyanide vats?

F. E. Kirshman, M.D., Muncie, Ind.

Answer.—In case hardening and tempering, metals may be treated with cyanide baths. Usually potassium cyanide is utilized. Under the influence of heat, hydrocyanic acid fumes may be produced, particularly if the carbon dioxide content of the air is high.

In industrial heat treating rooms in which cyanide is used, both systemic poisoning and (or) dermatoses may take place.

The International Labor Office's "Occupation and Health" bulletin number 181, entitled "Cyanogen and Its Compounds," furnishes excellent descriptive material on all aspects of cyanide poisoning.

An article by Dr. Huntington Williams on cyanide poisoning (The Journal, March 1, p. 627) contains excellent descriptive material also of acute and nonfatal forms of cyanide poisoning.

Prosser White's "The Dermatergoses or Occupational Affections of the Skin" describes the characteristics of cyanide skin abnormalities.

The International Labor Office publication says, with reference to cyanide dermatitis: "Varieties of dermatitis due to cyanides are also important. In a fatal case reported by Bridge in 1923, the skin of the right arm of the victim had been removed in patches, as if it had been burned. Brownish-red coloration of the skin of the hands and forearm have also been reported; the nails in one case were almost black (Collins and Martland). In most cases only eczema or acne rosacea lesions are noted, and they are situated chiefly on the dorsal surface of the fingers and hands, on the wrist and at the elbow, and, more rarely, on the face, ears, and front or back of the neck. In its primary form the lesions occur in the form of extremely irritating papules or vesicles; scratching and consequent infection leads to secondary forms. The lesions are persistent and relapses are frequent; this dermatitis is aggravated by small wounds or by maceration of the skin, or by the removal of fat due to the use of certain solvents, as in electroplating."

PHENOBARBITAL (LUMINAL) AT PARTURITION

To the Editor:—A patient, aged 35, having one living child by a previous cesarean section, performed because of a pelvic contracture, was recently prepared for a second cesarean section three days before the estimated date of term. She was nervous and apprehensive and consequently was given 6 grains (0.4 Gm.) of phenobarbital two hours before time for the operation. No morphine or other opiates were given the patient. The usual fundal cesarean section was performed rapidly and no difficulties were encountered. The baby, when delivered, was livid and, though weakly, cried immediately. It failed to cry lustily from the start and breathed with difficulty but did not appear to have any obstruction. The child became cyanotic at intervals, and considerable frothy fluid exuded from the mouth. It was placed in an incubator and given oxygen as necessary. The child died about nine hours after delivery. It was believed to have been practically full term, as it was fairly free from vernix and the hair and nails were well developed. I could advance no logical reason why this baby should have died after receiving all forms of resuscitation and stimulation unless it could have been that the phenobarbital was responsible. Do you believe it probable or possible that the phenobarbital given the mother could have been in any way a factor in the production of death in this case?

George H Adler, M.D., Klamath Falls, Ore.

Answer.—It is hardly likely that the phenobarbital given to the patient shortly before the delivery of the baby was responsible for the death of the child. Larger doses than 6 grains (0.4 Gm.) have been given to patients in labor without any harm to their new-born children. It is unfortunate that a necropsy was not performed in this case. There are a number of reasons to explain the death of babies born even by cesarean section in which the amount of trauma is almost a minimum. A postmortem examination might have revealed a congenital anomaly that was incompatable with life. The child might have aspirated liquor amnii before it was removed from the uterus or it might have had asphyxia from some other cause. If the necropsy had failed to reveal any cause of death, then phenobarbital might be held responsible on the assumption that the child had an idiosyncrasy toward this drug.

TREATMENT OF COLITIS—USE OF RHUS ANTIGEN

To the Editor:—1. I have a patient with thyrotoxicosis and associated *emaciation, myocarditis and colitis, whom it is planned to improve with* rest and symptomatic treatment for eventual thyroidectomy. The only medication being used at present is small frequent doses of "bismuth" and 5 grain (0.3 Gm.) doses of barbital at bedtime. The patient has normal bowel movements for several days or a week or more which are interrupted by a paroxysm of diarrhea lasting from several hours to two days. Tincture of opium has been used to stop the diarrhea, with good success. Each attack of diarrhea is accompanied by the loss of the amount of body weight gained since the last previous attack. Would you recom*mend novatropine for the colitis? Kindly advise as to dosage and pre*cautions if you think this drug could be properly used. 2. What is the present status of the treatment of ivy poisoning with Rhus-antigen.

C. M. Bahnson, M.D., Jersey City, N. J.

Answer.—1. A roentgen examination of the colon would be an advantage in determining whether or not the diarrhea is due to retention of material in the proximal colon. If it is, then mild laxative treatment consisting of magnesia magma or castor oil, taken regularly as long as the patient is at rest, would be more likely to succeed than the constipating therapy that is being employed at present. The preoperative use of iodine is advisable in this case, because it would temporarily lessen the hyperthyroid tendency, which, no doubt, exaggerates the colonic reactivity. Novatropine is an artificial tropeine, from which no more could be expected than from atropine. It would merely act as an antispasmodic.

2. Rhus preparations have not proved effective as a means of immunization against ivy poisoning.

ALUMINUM IN BODY NOT CUMULATIVE

To the Editor:—I noticed in *McCall's* for march, I believe, an article about aluminum not being absorbed by the body. In the article quoted in The Journal (March 31, 1928, p. 1010) it says that "the metals *combine with both the white and the red cells of the blood to some* extent." Will not one metal, such as aluminum, be absorbed just as quickly as any other metal, such as iron or tin, by the body so that, if one metal could poison a person, another could?

J. A. Holton, Woodburn, Ore.

Answer.—The various metals behave quite differently in the body. Aluminum is but slowly absorbed. It is rapidly eliminated from the blood, chiefly by the bowels. The bile has been found especially rich in aluminum. It is eliminated to a lesser extent by the kidney. There seems to be no tendency for it to collect in the body; and, in spite of the fact that aluminum may frequently enter the body in small amounts in various ways, cases of chronic poisoning *from it have not been reported.*

SCANTY MENSTRUATION

To the Editor:—A multipara, aged about 35, who is inclined to be stout and phlegmatic, is regular with the menses, but there seems to be no color in the flow (about straw color). I cannot find a pathologic change to account for this, only stoutness. What can be the cause?

G. Glenn White, M.D., San Diego, Calif.

Answer.—Regular menstruation with scanty or watery flow is most often ascribable to debilitated general health; too frequent pregnancies may be a factor. Another relatively common cause of decreased or "thin" menses is derangement of the glands of internal secretion, notably deficiency of the thyroid gland. Determination of the basal metabolic rate should reveal the presence or absence of thyroid disturbance; if normal, special attention should be given to the maintenance of a well balanced diet, life outdoors, and avoidance of pregnancy until the return of robust health.

DANGERS IN USE OF X-RAYS

To the Editor:—We recently installed an x-ray apparatus with a separate fluoroscope and table. We do perhaps eight or ten fluoroscopic examinations a day and take a few pictures. We are not in the habit of using protective aprons or gloves and about the only bad results we have noticed to ourselves is an occasional mild dermatitis of the backs of our hands and a brittle condition of the nails, causing them to split and crack easily. What is the probable outcome to our general physical con*dition (blood picture), if any, if we continue as we are doing?*

M.D., Michigan.

Answer.—Fundamentally, x-rays are dangerous and due caution must be exercised in their use. A fair test would be to darken completely the room in which the apparatus is used and to use the fluorescent screen in the different locations occupied by those in the immediate vicinity and usual positions of the operators. If the screen fluoresces in the slightest degree, it should be considered dangerous and the protection is not ample.

It is evident that the inquirer is exposed to the action of the x-rays because of the dermatitis on the back of the hands and the brittle condition of the nails. He should be more cautious, because it is by repeated exposures that serious consequences will occur. There are many possibilities of which little is known, especially those concerned with the endocrines. As to the blood degeneration, one should bear in mind a leukopenia and the development of an aplastic anemia.

BLOOD IN FECES

To the Editor:—At a staff meeting of a hospital a case of carcinoma of the rectum, complicated by a rectal fistula from which came blood that was almost black, was reported and discussed. Nothing was said as to whether or not there was a hemorrhage from the anus. In intestinal hemorrhage it is accepted, I believe, that the color of the blood is diagnostically indicative as to the location of the lesion—the darker the blood, the higher up in the gastro-intestinal tract is the lesion. If a case of carcinoma of the rectum is complicated by a rectal fistula and if from *this rectal fistula comes blood that is dark, almost black, is the color of* the blood due to the fact that it came from and possibly had remained a shorter or longer time in the fistula, or might it be indicative of a lesion higher up in the digestive tract in addition to the rectal carcinoma, and might the color of the blood be solely due to the digestive process while on its way to the exit? Kindly omit name and address.

M.D., Washington.

Answer.—The appearance of dark tarry blood in the feces *is usually indicative of bleeding high up in the gastro-intestinal* tract. However, altered blood is frequently found in individuals with obstructive and ulcerating lesions of the colon and this is due to the formation of iron sulphide from the action of the *sulphide gases and the blood. The case here presented appears* to be one of this nature in that the blood has remained in the colon for some period probably because of the partial obstruction from the rectal carcinoma and the irritation of the fistula.

CAUTERIZATION OF THE CERVIX IN CHILD WITH ENDOCERVICITIS

To the Editor:—Would you advise cauterization of the cervix in a child, aged 10 years, who has had a gonorrheal endocervicitis for fourteen months? I have used the usual remedies and mixed vaccine, but the discharge and tenderness of the uterus continues. I should be glad to have suggestions regarding the treatment of such a case.

C. W. Harper, M.D., Chipley, Fla.

Answer.—There is as much indication to treat a 10 year old child who has gonorrheal endocervicitis with the electric *cautery as there is to treat an older individual.* The cautery should be used in this case because the other remedies have failed and also because cautery treatments usually produce a rapid amelioration of symptoms. After each cautery treatment *it may be helpful to apply a 10 per cent solution of mercuro*chrome-220 soluble not only to the cervix but also all over the vaginal mucosa. Prolonged hot sitz baths may likewise prove beneficial. The child should be isolated as much as pos*sible from other children, especially from younger girls,* who are very susceptible to gonorrheal vaginitis.

POSSIBILITY OF POISONING FROM MERCUROCHROME ENEMAS

To the Editor:—I would like to inquire if there is any danger of mercury poisoning resulting from enemas in which 15 grains (1 Gm.) of mercurochrome is added to one pint (475 cc.) of fluid.

M.D., Minnesota.

Answer.—There is not much danger, even though the contemplated dose is perhaps three times as great as the dosage used intravenously and 50 per cent greater than the oral dose. If the enemas were used daily for quite a long time, there might be sufficient absorption of mercurochrome to produce mercurialism, which would probably be first evidenced by stomatitis, the appearance of which should be an indication for discontinuing this therapy.

COMPLICATIONS OF PERNICIOUS ANEMIA

To the Editor:—Kindly advise me in the following case: A man, aged 60, has had pernicious anemia for several years. He has done well on liver and liver extract except that he complains a great deal of tingling, numbness and weakness in his limbs, which I attribute to sensory disturbance from the anemia. Please suggest a treatment for this phase of the case.

J. G. Busby, M.D., Salisbury, N. C.

Answer.—The numbness and tingling described may disappear with the improvement consequent on liver therapy, but this is not always the case. There is no specific therapy for the sensory disturbances.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 12, 1931. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery, Ala.

ARIZONA: Phoenix, Jan. 6-7, 1931. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

CALIFORNIA: San Francisco and Los Angeles, Dec. 10, 1930. Reciprocity examinations. Sec., Dr. C. B. Pinkham, 420 State Office Bldg, Sacramento, Calif.

COLORADO: Denver, Jan. 6, 1931. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

DELAWARE: Wilmington, Homeopathic, Dec. 16-18, 1930. Regular, Dec. 9-11, 1930. Reciprocity, Dec. 16, 1930. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington, Del

DIST. COLUMBIA: Basic Science, probably Dec. 28, 1930. Regular, Jan. 12, 1931. Washington, D. C. Sec., Dr. W. C. Fowler, District Bldg., Washington, D. C.

IOWA: Des Moines, Dec. 2-4, 1930. Dir., Mr. H. W. Grefe, Iowa Dept. of Health, Des Moines, Iowa.

KANSAS: Topeka, Dec. 9, 1930. Sec., Dr. A. S. Ross, Sabetha, Kan.

KENTUCKY: Louisville, Dec. 2, 1930. Sec., Dr. A. T. McCormack, 532 W. Main St., Louisville, Ky.

MARYLAND: Regular, Baltimore, Dec. 9-12, 1930. Sec., Dr. H. M. Fitzhugh, 1211 Cathedral St., Baltimore, Md. Homeopathic, Baltimore, Dec. 9, 1930. Sec., Dr. J. S. Garrison, 517 Old Orchard Rd., Ten Hills, Baltimore, Md.

MINNESOTA: Minneapolis, Jan. 6-7, 1931. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., Minneapolis, Minn.

MISSISSIPPI: Jackson, Dec. 11, 1930. Reciprocity Applicants only. Sec., Dr. F. J. Underwood, Jackson, Miss.

NORTH CAROLINA: Raleigh, Dec. 1, 1930. Endorsement of Credentials. Sec., Dr. J. W. MacConnell, Davidson, N. C.

NORTH DAKOTA: Grand Forks, Jan. 6-9, 1931. Sec., Dr. G. N. Williamson, Grand Forks, N. D.

OHIO: Columbus, Dec. 1-4, 1930. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus, Ohio.

OREGON: Portland, Jan. 6-8, 1931. Sec, Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland, Ore.

PENNSYLVANIA: Philadelphia, Jan. 6-10, 1931. Supt, Mr. C. D Koch, Harrisburgh, Pa.

RHODE ISLAND: Providence, Dec. 30-31, 1930. Dir., Mr. L. A. Round, Room 319 State Office Bldg., Providence, R. I.

UTAH: Salt Lake City, Dec. 15 and 16, 1930. Dir., Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City, Utah.

VIRGINIA: Richmond, Dec. 9-12, 1930. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke, Va.

WASHINGTON: Seattle, Basic Science, Jan. 8-9, 1931. Regular, Dec. 12-13, 1930. Dir., Mr. Charles Maybury, Olympia, Wash.

WISCONSIN: Milwaukee, Dec. 13, 1930. Basic Science. Sec., Prof R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis. Regular, Madison, Jan. 13-15, 1931. Sec., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

Indiana Reciprocity Report

Dr. W. R. Davidson, secretary of the Board of Medical Registration and Examinations of Indiana, reports 12 permanent certificates and 35 temporary permits issued to physicians through reciprocity with other states from Jan. 1, 1930, to Aug. 30, 1930. The following colleges were represented:

PERMANENT CERTIFICATES

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Los Angeles	(1918)	California
American Medical Missionary College, Chicago	(1903)	Illinois
Northwestern University Med. School..(1923) Iowa,	(1928)	Minnesota
Rush Medical College..(1904) (1928)	(1929)	Illinois
University of Illinois College of Medicine	(1928)	Illinois
Indiana University School of Medicine	(1917)	Louisiana
University of Minnesota Medical School	(1924)	Minnesota
Albany Medical College	(1908)	New York
Eclectic Medical College, Cincinnati	(1920)	Ohio

TEMPORARY PERMITS

College	Year Grad.	Reciprocity with
University of Georgia Medical Department	(1929)	Georgia
Chicago College of Med. and Surgery..(1910) (1913)	(1915)	Illinois
Hahnemann Medical College of Chicago	(1889)	Illinois
Loyola University School of Medicine..(1927) (1928)	(1930)	Illinois
Northwestern University Medical School	(1925)	Illinois
Rush Med. College...(1926) Minnesota, (1923) (1927)	(1929)	Illinois
University of Illinois College of Medicine.....(1901)	(1929)	Illinois
State University of Iowa College of Med....(1902)	(1929-2)	Iowa
University of Louisville School of Medicine	(1929)	Ohio
(1925) (1929) Kentucky		
Johns Hopkins University School of Medicine	(1927)	Maryland
Detroit College of Medicine and Surgery	(1927)	Michigan
University of Michigan Medical School	(1924)	Maryland
(1927) (1[illegible]		
Eclectic Med[illegible]	(1922)	Ohio
Ohio State [illegible] Medicine	(1924)	Ohio
University o[illegible] Medicine..(1921)	(1930)	Ohio
University o[illegible] Medicine	(1926)	Mississippi
Meharry Medical College	(1904)	Georgia
University of Toronto Faculty of Med..(1921) Illinois,	(1923)	Michigan
University of Budapest Faculty of Medicine	(1923)	Illinois

Book Notices

A HISTORY OF THE CALIFORNIA ACADEMY OF MEDICINE, 1870 TO 1930. By J Marion Read. Boards. Price, $10. Pp. 186, with illustrations. San Francisco: California Academy of Medicine, 1930.

For the first twenty-one years of its existence, the California Academy of Medicine bore the title of the San Francisco Medical Benevolent Society. It was one of eighty societies, in a city numbering 150,000 people, classed as "benevolent" twenty-two years after the discovery of gold in Yerba Buena.

The biographic sketches include the presidents of the academy, beginning with Robert McMillan, a "forty-niner" who was content to practice medicine and resist the temptation of most of his fellows to go prospecting in the hills. The society seems to have been the center of some controversies, such as that over the first cesarean section performed in the state, the James King of William affair, and the seeming aspersion cast by Beverly Cole on the women of California, all of which were characterized by intense animosity, alining every physician on one side or the other.

The early practitioners of San Francisco were lured by a strong love of adventure which impelled so many to follow the trail of the "forty-niners." Dr. Samuel R. Gerry, one of three members of the first executive committee, migrated from Massachusetts to Chile and then to San Francisco, where he attended the first patient with cholera in the epidemic of 1849 and was made quarantine and health officer of the port of San Francisco. Another executive committeeman was Arthur Peronneau Hayne, who traveled from South Carolina to Paris and then to San Francisco; Robert McIntosh and Robert Kennedy Nuttall were young medicos who met in the antipodes and then started to practice in a tent in San Francisco, and assisted in the formation of the first medical society in San Francisco in 1850. To Victor Jean Fourgeaud, a member of the executive committee in 1873, belongs the honor of being one of the first of that illimitable band of California boosters. Educated in science, he used his trained powers of observation with the result that his essay "The Prospects of California" marked him as a pioneer in truthful advertising. In 1848 General Sutter sent to Fourgeaud a small ore specimen, which he tested and pronounced "pure gold," thus making the first test of metal in California. The third president of the benevolent society, Washington Ayer, was an eye witness of the first surgical operation performed under ether anesthesia at the Massachusetts General Hospital in 1846. At the fifteenth anniversary of the introduction of ether in surgery, he recounted the details of that momentous event, which was considered by Packard in his "History of Medicine of the United States" the best written account extant.

One feature of interest in the early society was the extreme heterogeneity of its membership. Mexican, Russian, Canadian, German, Irish, French and Scotch medical schools as well as a dozen in this country were represented. Native sons recently graduated from local schools joined the "forty-niners" from the four corners of the earth, but they had one thing in common—they were trained graduate physicians. When the question of licensing became acute, the San Francisco Medical Benevolent Society regarded itself as a state medical organization and proceeded to appoint the board of medical examiners for the state. In 1889, the membership of sixty-six physicians decided that, on account of the incongruity existing between the name and its function, the San Francisco Medical Benevolent Society should change its name to the California Academy of Medicine.

The academy period, 1891-1913, was marked by the building of a home which established an indebtedness of $12,500. The president in 1899 was the brilliant John F. Morse, whose fame rested on the first successful wiring of an abdominal aneurysm. Programs of this period featured such persons as R. Beverley Cole, President of the American Medical Association; William Watt Kerr, the beloved teacher, and Douglass W. Montgomery, who was president of the academy during the trying period of the financial collapse in 1898, when the society lost its home.

Programs for the years 1896 and 1897 marked the inauguration of the habit that was the forerunner of the present and only form of meeting in which addresses are given by imported speakers; they drew on medical officers in the army, navy, public health and other federal services, and among other speakers of this era was Dr. M. J. Rosenau, who talked on "The Practical Value of Bacteriology in Quarantine Work." The history recounts the true situation with regard to the plague epidemic of 1900, concerning which the newspapers connived to keep facts under cover, prompted by short-sighted commercialism.

There was a temporary abrupt termination of the society's activities in 1906 by the earthquake and fire, which put the organization in a somewhat moribund state, lasting until the modern period of reorganization.

Under the presidency of Dr. T. C. McCleave, dinner meetings were held and the assumption of social aspects in connection with the scientific program proved popular. The secretary-treasurer's records prior to 1916 are apparently nonexistent, but in that year LeRoy Briggs installed the present system of accurately recording the minutes. The academy's activities suffered curtailment in war time, which was felt by every nonmilitary organization. Dr. Ray Lyman Wilbur, president for 1917, spent much time in the national capital in war work, and many others were in the war service. One of the versatile men of this time, Saxton Temple Pope, was the secretary of the academy, a great surgeon whose interest in other fields prompted him to make a study of bows and arrows after meeting Ishi, the sole survivor of the Yana tribe of Indians. Pope made seventeen expeditions hunting with a bow and arrow, the last one in Africa. The volume gives a fairly complete outline of the activities of each year from 1915 to 1929. The careers of many prominent academy members are outlined in detail. Dr. A. W. Hewlett, president in 1922, became professor of medicine in Stanford University Medical School, which chair President Ray Lyman Wilbur had vacated to become president of the university. Hewlett served for six years as a member of the Council on Pharmacy and Chemistry of the American Medical Association, during which time the report of his work on "The Clinical Effects of Natural and Synthetic Sodium Salicylate" was published. A series of tables giving the program of meetings from 1915 to date are included in this history together with an analysis of attendance at meetings from 1927 to 1930 with the locations of guests and members. Appendixes include a list of officers from 1870 to 1930; membership roll as of Jan. 1, 1930, arranged by counties, and a copy of the constitution and by-laws. Numerous pictures of prominent members are included in the book. The reader is referred to a list of printed sources used by the compiler of this volume. The California Academy has made it known to the members of the profession that its chief function is to bring distinguished scientists who are making current medical history to San Francisco that its members might learn of medical advancement, yet no press notices reach laymen. California physicians will read this delightful volume with complacence, tracing the growth of a substantial and helpful organization through the vicissitudes of its formative period. Physicians of other states will find in this history corollaries of the problems of any medical group.

Die Verästelung der Arteria renalis in der Niere des Menschen: Eine historisch-anatomische Untersuchung. Von H. M. Hou-Jensen, Prosector anatomie. Paper. Pp. 140, with 59 illustrations. Berlin: Julius Springer, 1929.

The author precedes the report of his own observations with an extensive representation of the various theories regarding the structure of the kidneys, held since Galen. From the detailed description of his own investigations only a few statements can be pointed out. The length of the renal artery, which originates as a single trunk (78 per cent), is on the right side 5.2 cm., on the left 5.3 cm. It usually ramifies near the hilus, by dividing into three or four branches. Aberrant arteries can be found in one out of five kidneys. The author differentiates between a dorsal arterial trunk, which enters unramified into the hilus, and a ventral trunk, which is divided fanlike. The blood supply of each lobe is provided by at least two arteriae interlobares. One part of their branches leads exclusively to the columnae bertini (insignificant); the other branches form the arteriae arciformes above the bases of the pyramids, and branches are also sent to the columnae and to the connective tissue sheaths of the larger vessels. The cortex arteries originate mostly in trunks that come either acute-angled or right-angled out of the arteriae arciformes or out of their terminating ramifications. They always merge into the arteriae afferentes and send out only detached rami capsulares, rarely also directing thin branches to the round meshy net of capillaries. The off-branching of vessels from the vasa afferentia to the capillary net was noted in only 2 per cent of the cases. The blood supply of the medullary substance is mainly postglomerular. Direct branches from the vasa afferentia, respectively branches of the arteriae arciformes (arteriae rectae verae), the existence of which was already doubted by Lee-Brown, are rare and of no significance for the normal circulation. Arteriovenous anastomoses could not be demonstrated by the author.

Outline in Obstetrics for Nurses. By F. W. Rice, M.D., Instructor in Obstetrics, Iowa Methodist Hospital, and Broadlawns General Hospital, Des Moines, Iowa. Cloth. Price, $2. Pp. 228, with 56 illustrations. St. Louis: C. V. Mosby Company, 1930.

Just why this book was published is difficult to tell. The author says, "This outline is not intended as a textbook. It saves the time of the teacher in that he can lecture faster and need not stop to spell words. It enables the student to pay more strict attention to the lecture and not lose half of it while she writes down the other half." There are excellent books on obstetrics for nurses, especially those by De Lee and Van Blarcom. If a nurse possesses either of these two books she has no need for the present outline and if she owns only the latter she will not learn enough about obstetrics from it. The illustrations in this book consist of photographs reproduced from seven different books on obstetrics and a few crude drawings. The latter could advantageously have been replaced by more illustrations from the seven textbooks. Fifty pages are entirely blank for the use of notes. A large proportion of the space on the remaining pages is likewise empty, so that the actual printed material could have been published in a small booklet. The best part of the book is the introduction, which contains sound advice to prospective nurses.

Les vomissements chez le nourrisson: Sténoses pyloriques et duodénales. Par E. Lesné, et Maurice Coffin, médecin de l'Hôpital Bon-Secours. Paper. Price, 25 francs. Pp. 139. Paris: Gauthier-Villars & Cie, 1930.

The authors have presented in this brief monograph a clinical bedside description of the most common types of vomiting in the infant, including a discussion of the etiology, pathogenesis and treatment. They observe that vomiting may be either a casual episode or a persistent phenomenon demanding attention. The authors find that in the normal infant the stomach is empty three hours after feeding. Also the motor activity of the stomach varies with the type of milk ingested. Cow's milk passes through more rapidly than human milk. Radioscopic examination of the normal infant's stomach indicates an easy and rapid passage of the contents into the small intestine. The occasional episodic vomiting in an infant may be due to alimentary disturbances induced by underfeeding or overfeeding, irregular hours of feeding, vitamin deficiency, puerperal infection or breast abscess in the mother, dyspepsias, gastro-enteritis, or infectious diseases. Meningitis, encephalitis, whooping cough, tracheobronchial adenopathy, severe icterus and sepsis may also be associated with vomiting. The authors find that neuropathic children may be subject to vomiting particularly if brought up in an unsuitable environment under an emotional mother. The third chapter is devoted to grave paroxysmal types of vomiting found in such varied clinical conditions as intestinal invagination, strangulated hernia, alimentary anaphylaxis, cyclic vomiting and gastropylorospasm. Anaphylaxis to the milk is found to be the most frequent type of alimentary anaphylaxis in the infant. Next in frequency is anaphylaxis due to eggs. Small amounts of these foods in sensitized infants cause alarming symptoms and even collapse and death. The diagnosis and treatment of pylorospasm are discussed in detail. It is pointed out that in pylorospasm there is no stasis, in contrast with the condition in pyloric stenosis.

The last chapter is devoted to a discussion of pyloric and duodenal stenosis, or the types of vomiting associated with stasis. In determining the presence of gastric stasis, two methods are advocated by the authors, the passage of a stomach tube and the method of double weighing. In the latter method, measured amounts of milk are given and the infant is weighed immediately after the last attack of vomiting. It is frequently found that the vomitus weighed more than the last meal given, thus showing the existence of a retention. The presence of a milk residue in the stomach of an infant four hours after the last feeding is presumptive evidence of mechanical obstruction. The incidence and pathology of pyloric stenosis are discussed. Two clinical types are mentioned. There is an acute type in which spasm plays little part. Of less frequent occurrence is the chronic type, in which both stenosis and spasm are present. The authors think that the presence of spasm tends to mask the diagnosis in the latter form. They attach little or no diagnostic importance to the presence or absence of a palpable pyloric tumor. As for treatment, they are decidedly in favor of surgical methods and do not advise medical treatment of pyloric stenosis. The mortality statistics of various surgeons are presented in detail and the importance of expert postoperative care is stressed. Duodenal obstruction is considered to be an important condition to differentiate from pyloric stenosis. Etiologically it is thought to be due to a developmental atresia or fetal peritonitis. Radiographic examination is said to show a dilated duodenum, and the treatment is surgical.

This monograph considers in a broad way the various phases of vomiting as it occurs in infancy and presents a clinical review which will be useful to students and practitioners.

A FRONTIER DOCTOR. By Henry F. Hoyt. With an introduction by Frank B. Kellogg. Cloth. Price, $3.50. Pp. 260, with illustrations. Boston: Houghton Mifflin Company, 1929.

The current year has seen several contributions to autobiographic works by physicians. At the present moment the book by Axel Munthe is listed among the best sellers and is recognized as one of the most romantic works available for the public interested in medical practice. The work by Dr. Hoyt is a book of a different character. Munthe has confessed that much of his book represents the borderland between truth and fiction. Dr. Hoyt's work is solid fact about a romantic life. He practiced medicine in Texas, New Mexico and the Far West at a time when life was a struggle. In the Spanish-American War he served in the Philippines. He earned his education as a cowboy and as a doctor in frontier districts. He knew that famous outlaw called "Billy the Kid." His life is a most interesting story and will appeal to physicians who have served in a similar territory or under similar conditions.

A SYSTEM OF BACTERIOLOGY IN RELATION TO MEDICINE. Volume I. By F. W. Andrewes, J. A. Arkwright, and others. Medical Research Council. Cloth. Price, £1 1s. 0d. net. Pp. 374, with illustrations. London: His Majesty's Stationery Office, 1930.

The previous volumes of this system have been reviewed on various occasions in THE JOURNAL. They have concerned primarily the various classifications of bacterial organisms. The present volume has an introduction by Balfour and provides not only a good history of bacteriology but chapters of general subjects in this field, including morphology, physiology, growth and reproduction, disinfection, bacterial metabolism, classifications and variations. The work is exceptionally complete. Each of the chapters is supplemented by a good bibliography. The entire series of volumes constitutes as important a reference work as is available. The illustrations, particularly in the section on history of bacteriology, are well selected and handsomely reproduced, so that the system may, as a whole, be recommended without reservation to every student of the subject and to every physician with a special interest in this field.

HIERONYMI FRACASTORII DE CONTAGIONE ET CONTAGIOSIS MORBIS ET EORUM CURATIONE, LIBRI III. Translation and notes by Wilmer Cave Wright, Ph.D., Professor of Greek in Bryn Mawr College. Cloth. Price, $4.50. Pp. 356. New York: G. P. Putnam's Sons, 1930.

The year 1930 is the four hundredth anniversary of the publication of the famous poem by Fracastorius on the subject of syphilis; hence, it is especially interesting that Professor Wright should make available, as one of the volumes on the history of medicine issued under the auspices of the Library of the New York Academy of Medicine, a new translation of this work, supplemented by an excellent introduction in which are quoted some of the most important opinions of the work that have been published from time to time throughout the world. The volume is printed with the Latin on one page and the English translation on the opposite page, so that it thus becomes available as a reference for physicians who may be attempting to brush up on the classics.

SONDERBÄNDE ZUR STRAHLENTHERAPIE. Herausgegeben von Professor Dr. Hans Meyer. Band XV: Die Röntgenbehandlung der Nervenkrankheiten. Von Prof. Dr. Otto Marburg, Vorstand des Neurol. Institutes der Wiener Universität, und Doz. Dr. Max Sgalitzer, Leiter des Röntgenlaboratoriums der I. chir. Klinik der Wiener Universität. Paper. Price, 15 marks. Pp. 213, with 4 illustrations. Berlin: Urban & Schwarzenberg, 1930.

The authors give a complete survey of the therapeutic possibilities and results of roentgen therapy in disorders of the nervous system. The basis of their report is furnished by experiences gleaned in cooperation with the surgical clinic of von Eiselsberg in Vienna. At the same time they collected and abstracted the literature pertaining to this topic and critically sifted this material. The authors profess that their main object was to outline and determine the indications for the application of this method and also to present results as far as it is possible to do so, considering that a rational roentgen therapy of nervous disorders dates back only for about ten years. In order to facilitate for the neurologist an understanding of the possibilities of roentgen therapy, in three introductory chapters the authors discuss the fundamentals of the physics of x-rays, their biologic action and the practice of therapeutic irradiation. The therapeutic chapters are divided according to the pathologic conditions to be treated. A quick orientation is facilitated by a summary attached to each chapter that concisely reports all the leading points elaborated in the text. While the authors are convinced that further observation and technical progress will furnish results above the present accomplishments, their reports reflect a sober and sound scrutinizing of results. This book may truthfully be considered a valuable guide for anybody interested in this rather new field of therapeutic endeavor.

THE MORPHINE HABIT AND ITS PAINLESS TREATMENT. By G. Laughton Scott, M.R.C.S., B.A. Cloth. Price, 5/- net. Pp. 94. London: H K. Lewis & Company, Ltd., 1930.

The "painless treatment" consists of a modification of the Lambert-Townes treatment plus the use of phenobarbital. In the first four chapters, on introduction, etiology, symptoms of morphinism and the avoidance of shock in treatment, nothing new is given. In the fifth chapter, on special medication, the author explains that his treatment consists of the Lambert mixture with the xanthoxylum replaced by water and that the drastic purgation is also eliminated. Both of the points were first advised in 1915 by the editor of THE JOURNAL (see article on drug addictions in the "Handbook of Therapy"). The treatment consists of the withdrawal of the morphine in from seven to twelve days under a gradually developed tolerance to the belladonna and scopolamine mixture, with free and increasing doses of phenobarbital. The mixture is started with 5 minims (0.3 cm.) hourly and the dosage is steadily increased until a tolerance is developed in which some patients exceed an hourly dose of 1 drachm (4 cc.) without developing delirium or toxic symptoms, just below the point of delirium, where the pupils are dilated but still reaction to light is best; at the same time the morphine is reduced and phenobarbital is used as necessary for sleep and to reduce nervous symptoms. Medication ceases at night and the bowels are kept well open; but no exhausting purgation is given. The author believes that the end-results are better because the patient is spared the shocks of delirium, of merciless diarrhea and of sleepless nights. He states that it is not possible for any physician who has not had some experience in treating these cases to make a satisfactory withdrawal, however well provided he may be with instructions of actual treatments. The remaining five chapters are on withdrawal in three cases, the diary of a patient, and a short description of twenty consecutive cases treated during the past five years. Eleven of the patients were physicians, one was a dentist, five were women and three were men. There is a short chapter on convalescence, the conclusion, and an appendix consisting of twenty-four pages written by a medical morphinist who after three treatments, a scopolamine "knock-out," a Jennings (whom he accuses of being an ex-morphinist) and a modified scopolamine treatment, all failures, finds Dr. Scott's method the only reliable one. All of the references are from American medical writers.

Principles of Bacteriology in Fifteen Lessons. By Arthur A. Eisenberg, A.B., M.D., Director of Laboratories, Sydenham Hospital, New York City, and Mabel F. Huntly, B.S., R.N., Director of the School for Preliminary Courses in Nursing, Philadelphia. Fifth edition. Cloth. Price, $2.75. Pp. 322, with 62 illustrations. St. Louis: C. V. Mosby Company, 1930.

This book is intended for use in training schools for nurses. As is true of almost all the textbooks intended for this purpose, too much material is presented. All that can be expected of the nurse is that she absorb certain fundamental principles; she has neither the time nor the inclination to interest herself in details. The present volume could be made more valuable by the elimination of such material. In general, the point of view is up to date and the facts given are as nearly correct as is possible to expect in a brief textbook. It is refreshing to find an author who is willing to admit that bacteria cannot be classed either as plants or as animals. A few suggestions for improvements might be made. An attempt to make a distinction between saprophytic and parasitic bacteria in the body is rather a waste of time, since it is necessary, as these authors have found, immediately to withdraw any such distinction. The acid alkali titration method might have been omitted, as it has been discarded for all practical purposes. An example of unnecessary detail is found in the description of the streptococcus groups. If the nurse can be taught to distinguish hemolytic and "green-producing" types, it is all that can be expected. The discussion of anaphylaxis is somewhat misleading. It is hardly correct to say that this phenomenon "explains why some people are left more susceptible to infectious diseases after one attack than ever before." It would have been desirable to make some further reservations in regard to the tuberculin test in order to prevent the inference that this test will diagnose the disease. The discussion of water purification is too casual to be of any value. The book is to be commended for its excellent illustrations.

Handbuch der normalen und pathologischen Physiologie mit Berücksichtigung der experimentellen Pharmakologie. Herausgegeben von A. Bethe, G. v. Bergmann, G. Embden und A. Ellinger. Band IX: Allgemeine Physiologie der Nerven und des Zentralnervensystems. (E.I.II. 1.2 a--c.) Bearbeitet von Ph. Broemser, E. Th. Brücke, usw., usw. Paper. Price, 78 marks. Pp. 840, with 162 illustrations. Berlin: Julius Springer, 1929.

In previous issues of The Journal since 1925, various volumes of this handbook have been reviewed as received from the publisher, some fifteen in all. The stupendous and commendable task is now nearing completion. In June, 1930, one volume (XVI) and parts of two others (XII/2 and XV/2) were still to appear in order to complete the set of seventeen volumes. It is the last word as a reference work and should be on the shelves of every biologic and medical library. The present volume deals with the general problems of the physiology of nerves and nerve centers, including such items as electrodiagnosis and therapy, metabolism of nerves, laws of stimulation, degeneration and regeneration, narcosis, local anesthesia, afterdischarge, summation, inhibition, reflex time, refractory phase, comparative physiology of the nervous system of the invertebrates, and conduction in plants. Most of the chapters will hardly interest the general practitioner. Even the clinical neurologist, unless himself doing research work in this general field, would find most of the matter too academic for his clinical needs although he fully realizes the importance of the collected data in the elucidation of the mode of action of nervous tissue.

Insomnia: How to Combat It. By Joseph Collins, M.D. Cloth. Price, $1.50. Pp. 130. New York: D. Appleton & Company, 1930.

Dr. Collins, through his experience as a neurologist, is able to look at the subject of sleep from the point of view of the mechanist concerned primarily with the physiologic functions of the body and of the psychiatrist who understands the deviations of the human mind. Hence his book may be considered one of the most practical works available in its field. His method of treatment includes not only proper attention to the physical accompaniments of sleep but particularly an attempt to get at the psychologic basis of the disorder that keeps the mind constantly in turmoil and distress. The book is essentially a new presentation of material published before. It carefully avoids much of the unestablished theory of modern psychologic schools. For this reason it is probably one of the most practical guide books available for those suffering with insomnia.

Medicolegal

Preformed Sac and Trauma in Relation to Hernia

(Berlau v. Metropolitan Life Ins. Co. (Kan.), 24 S. W. (2d) 686)

The Metropolitan Life Insurance Company issued to the plaintiff a policy insuring him against the results of bodily injuries caused by violent and accidental means but providing that it was not to cover disability caused wholly or partly by disease or bodily or mental infirmity. On or about Nov. 1, 1923, while the plaintiff was attempting to move a large iron safe, using a crowbar, he slipped and the upper end of the crowbar struck his left groin with sufficient force to cause him to fall. He suffered severe pains and was forced to discontinue work. When he examined his side, shortly after the accident, he found it bruised, discolored and swollen. After remaining at home for a day or so, he apparently returned to work and remained at his place of business for several months. January 9, the swelling caused him so much pain that he consulted Dr. I. J. Wolf, who diagnosed his ailment as an inguinal hernia and suggested an operation, which was performed, January 21.

The plaintiff instituted suit to collect under his insurance policy, and from an adverse judgment in the lower court the insurance company appealed to the Kansas City Court of Appeals. The company contended, among other things, that the hernia was the result of inherent physical weakness or defects or bodily infirmity and was therefore not covered by the policy. Dr. J. Park Neal, testifying as an expert for the company, stated that in all cases of inguinal hernia, particularly in the groin region, there is a congenital underlying cause consisting of a weakness of the abdominal structures and abdominal wall and lining. In such cases, he said, the canal does not fully close as it normally should and the peritoneum sags into this opening, forming a preformed sac. He testified, further, that in his opinion the fall described in the plaintiff's evidence could not have caused a hernia. Replying to a hypothetical question he said: "The hernia had to have the preformed sac. The strain may have forced some omentum or a piece of gut into the sac; I would not consider the blow had anything to do with it." On cross-examination he testified that hernia could be caused by a blow, but the blow would have to be such as to tear the abdominal walls and muscles and in such a case the man would be immediately disabled and in bed for weeks, or be compelled to undergo an immediate operation. The plaintiff testified that he had never had any trouble with hernia before the accident and that he had been examined by physicians for the insurance company, prior to the issuance of the insurance policy, and that they had found no evidence of hernia. Dr. Wolf, testifying for the plaintiff, in answer to a hypothetical question which recited the facts relative to the alleged injury, stated that such an occurrence could cause a hernia. With the conflicting theories presented by the witnesses, the court said, it is clear that the question as to whether the alleged hernia was due to the preformed sac, or whether it was due to the strain, the slip, blow or fall, was for the jury to determine and that the court was not authorized to disturb the findings of the jury in that respect.

The insurance company urged, also, that the evidence failed to prove that the hernia was produced by accidental means within the meaning of the policy, and cited the case of *Caldwell v. Traveler's, etc., Co.*, 305 Mo. 619, 267 S. W. 907, 39 A. L. R. 56. In the case cited, it was alleged that a surgical operation for two hernias resulted in an obstruction of the bowels and death. The court in that case reasoned that, assuming the obstruction of the bowels and the ensuing death were the unusual and unexpected result of the operation, skilfully done at the request of the insured, *intentionally* done, the death was not the result of accidental means. The court there held that where an unusual and unexpected result occurs by reason of the doing by the insured of an intentional act, where no mischance, mishap or slip occurred in the doing of the act itself, the ensuing injury or death is not caused through accidental means. In the present case, however, the court held that the alleged accident which caused the injury was unexpected, unforeseen and lay either in the slipping of the plaintiff or his fall against the crowbar, or both. Therefore, the court said, the ruling in the Caldwell case does not apply.

The policy provided that if an injury necessitated any surgical operation involving cutting into the abdomen for treatment of the organs therein, the sum of $100 was to be paid the plaintiff. The insurance company urged that the judgment of the lower court was excessive in that it allowed $100 for the herniotomy, contending that an operation for hernia does not require cutting into the abdomen. The court, however, overruled this contention. On condition that the plaintiff remit a certain sum, adjudged to be excess damages allowed by the lower court in computing the period during which the plaintiff was totally disabled, the appellate court affirmed the judgment of the lower court.

Wilful Betrayal of a Professional Secret

(McPheeters v. Board of Medical Examiners (Calif.), 284 P. 938)

The California Medical Practice Act provides that a license to practice medicine may be revoked for unprofessional conduct and includes in the definition of what constitutes unprofessional conduct "the wilful betraying of a professional secret." The board of medical examiners revoked McPheeters' license on the charge that he had been guilty of wilfully betraying a professional secret in that he wrote certain letters to a former office assistant in which he described operations performed on certain patients and imparted other information concerning the condition of the patients. The letters contained nothing which would in any manner tend to disgrace, embarrass or incriminate any of the patients and none of the patients made any objections whatever to the disclosures. The superior court, Fresno County, set aside the order of the board revoking the license and the board appealed to the District Court of Appeals, first district, division 1.

The phrase "wilful betrayal of professional secrets," said the court, cannot be held to apply to any and all disclosures that a physician may intentionally make. The statute is in its nature penal and is to be construed strictly in favor of an accused. By the use of the word "wilful" the legislature without doubt intended to mean an act that implied an actual and conscious infraction of duty and it would be a harsh and unreasonable construction to hold otherwise or to say that the disclosures here involved were of that character intended to be remedied by the statute. If such a construction was imperative, any disclosures, though harmless and innocently made without objection from the patients and regardless of their nature, would deprive a physician of his right to practice medicine, a right which has taken him years of study and a large expenditure of money to acquire.

Legislation of the character embraced within the general scope of the medical practice act, so far as it provides for the revocation of the certificate of a physician, can be sustained only on the ground that the legislature has authority under its general police power to provide all reasonable regulations that may necessarily affect the public health, safety and morals. The power thus conferred must be under provisions of law which are reasonable and declared with such certainty and definiteness that a physician may know exactly what they are. That the legislature did not intend the restriction to apply to all disclosures is evidenced by its use of the word "wilful." It has been held that such word means "deliberately and intentionally, and with design and purpose." *State v. Smith,* 199 N. W. 427, 159 Minn. 429, 511. It implies a deliberate intention, for which no reasonable excuse can be given, to do or refrain from doing some act which good faith in the performance of some duty requires or prohibits, as the case may be. It further implies that there must be some design, purpose and intent to do an injury. The word sometimes means "with a bad purpose and with the intention designedly and purposely to cause injury." So it has been held that an act, though intentional, is not wilful unless done with a wrongful purpose, or committed out of mere wantonness or lawlessness. *People v. Martinitis,* 168 App. Div. 446, 153 N. Y. S. 791; *Ex parte Cote,* 93 Vt. 10, 106 A. 519. It means "bad motive or purpose with the direct effect of injuring another" and involves the idea of premeditation and determination to do the act though known to be forbidden. *King v. Empire etc. Co.,* 148 Va. 585, 139 S. E. 478, 58 A. L. R. 193; *Gildersleeve v. Newton Steel Co.,* 109 Ohio St. 341, 142 N. E. 678.

The medical practice act was never designed nor intended, continued the court, to seal the lips of a physician against any and all disclosures, irrespective of their harmless character, nor was it designed to embrace facts not connected with the practice of a profession. The court affirmed, therefore, the judgment of the superior court, annulling the order of revocation made by the board of medical examiners.

Pharmacy: Care Required of Pharmacists.—For the treatment of his foxes, the purchaser ordered 100 tetrachlorethylene pills. Carbon tetrachloride pills were delivered to him instead and were administered to his foxes. As a result, eight died. In the suit that resulted, the court instructed the jury that:

> Ordinary care in reference to the business of a druggist signifies the highest practical degree of prudence, thoughtfulness, and vigilance, and the most exact and reliable safeguards consistent with the reasonable conduct of the business, in order that human and animal life may not be exposed to the danger flowing from the substitution of deadly poison for harmless medicine or more poisonous for lesser poisonous medicine.

The Supreme Court of Washington found no error in that instruction. It states the law, said the Supreme Court, in almost the same language as it is stated in *Willson v. Faxon, Williams and Faxon,* 208 N. Y. 108, 101 N. E. 799, 801, 47 L. R. A. (N. S.) 693, Ann. Cas. 1914D, 49, where it said:

> The negligence which must be established to render a druggist liable in such a case as this is measured by his duty; and, while this is only to exercise ordinary care, the phrase "ordinary care" in reference to the business of a druggist must be held to signify "the highest practicable degree of prudence, thoughtfulness and vigilance and the most exact and reliable safeguards consistent with the reasonable conduct of the business in order that human life may not constantly be exposed to the danger flowing from the substitution of deadly poisons for harmless medicines."

—Martin v. Bartell Drug Co. (Wash.), 284 P. 96.

Insurance, Accident: "Total Disability" Defined.—While there appears to be some conflict in the authorities as to what constitutes total disability within the meaning of an insurance policy providing for certain payments in case injury shall totally disable the insured, there is ample authority to be found both in the decisions and in the textbooks that in order to constitute total disability it is not necessary that the insured be absolutely helpless. An attempt by the insured to perform a few occasional, trivial acts relating to the duties of his employment, though in fact he ought not to have made such an attempt, does not deprive him of the right to show that he was totally disabled. It has been held sufficient to constitute total disability if the injuries are of a character and degree that common prudence requires the insured to desist from his labors so long as it is reasonable and necessary to effect a speedy cure.—*Sherman v. Continental Casualty Co. (Calif.), 284 P. 946.*

Insanity: Testamentary Capacity.—The word "incompetent," when used to describe a person's legal capacity to make a will, applies to any person, whether insane or not, who is by reason of old age or disease, or weakness of mind from any other cause, unable to understand what property he has, the relationship that he bears to those who would naturally be the objects of his bounty and what disposition he may be making of his property at the time. A person may be mentally incompetent to make a will and yet not be an insane person.—*In re Bielenberg's Estate (Mont.), 284 P. 546.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.

American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.

Radiological Society of North America, Los Angeles, December 1-5. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Society for the Study of Asthma and Allied Conditions, New York, December 6. Dr. Will C. Spain, 116 East 53d Street, New York, Secretary.

Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, New York, Secretary.

Southern Surgical Association, Lexington, Ky., December 9-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Kansas City, Mo., December 5-6. Dr. Frank R. Teachenor, 306 E. Twelfth St., Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

6: 1-162 (Oct.) 1930

*Syphilis of Aorta and Heart. H. S. Martland, Newark, N. J.—p. 1.
Gross Pathology of Heart in Cardiovascular Syphilis. J. G. Carr, Chicago.—p. 30.
*Microscopic Pathology of Cardiac Syphilis. C. C. Maher, Chicago.—p. 37.
*Localization of Syphilitic Virus in Aorta. J. W. McMeans, Pittsburgh.—p. 42.
Syphilitic Aortic Insufficiency: Aortic Valve Area, Myocardium and Branches of Aorta. O. Saphir and R. W. Scott, Cleveland.—p. 56.
Roentgenologic Diagnosis of Syphilitic Aortitis. D. Steel, Cleveland.—p. 59.
*Fluoroscopic Studies of Heart and Aorta in Acquired and Congenital Syphilis. C. M. Kurtz and J. A. E. Eyster, Madison, Wis.—p. 67.
Aorta: Syphilitic Aortitis. A. O. Hampton, E. F. Bland and H. B. Sprague, Boston.—p. 77.
Electrocardiogram and Teleroentgenogram in Early Syphilis. R. Ingraham and E. P. Maynard, Jr., New York.—p. 82.
*Symptoms and Clinical Course of Syphilitic Aortic Insufficiency. R. W. Scott, Cleveland.—p. 86.
Diagnosis of Cardiovascular Syphilis: Analysis of Clinical and Postmortem Findings. W. D. Reid, Boston.—p. 91.
Differentiation of Syphilitic from Functional and Other Forms of Aortic Insufficiency. L. T. Gager, Washington, D. C.—p. 107.
Course of Syphilitic Cardiovascular Disease. F. A. Willius, Rochester, Minn.—p. 113.
*Diagnosis of Syphilitic Aortitis with Negative Wassermann Reactions. S. A. Levine, Boston.—p. 116.
*Relation of Syphilis to Hypertension. E. F. Horine and M. M. Weiss, Louisville, Ky.—p. 121.
*Clinical Heart Findings in Children with Congenital Syphilis. G. Previtali, G. H. B. Nicolson and D. Moon-Adams, New York.—p. 128.
*Heart Disease in Children Due to Congenital Syphilis. T. B. Givan, New York.—p. 132.
*Congenital Syphilis as Cause of Heart Disease. H. McCulloch, St. Louis.—p. 136.
*Use of Intravenous Arsenicals in Treatment of Cardiovascular Syphilis. L. E. Hines and J. G. Carr, Chicago.—p. 142.
*Treatment of Cardiovascular Syphilis. J. E. Moore and J. H. Danglade, Baltimore.—p. 148.
*Principles Underlying Treatment of Cardiovascular Syphilis. U. J. Wile, Ann Arbor, Mich.—p. 157.

Syphilis of Aorta and Heart.—Martland feels that, from a clinical and pathologic standpoint, syphilis of the aorta and heart should be regarded as an acquired disease (congenital cases being infrequent) developing insidiously and showing symptoms years after the initial infection. It is possible to recognize clinically and to diagnose an early aortitis, an aortic regurgitation, a narrowing of the coronary ostia, an aneurysm, or any combinations of these lesions. Treatment and prognosis should be based on such recognition. The myocardium in syphilis is frequently normal. When the aortic valve is involved, the main myocardial lesion is hypertrophy. Inanition atrophy is occasionally encountered. Specific lesions of the myocardium are infrequent, and, when they occur, are so slight in extent as to be of little practical importance. It is safer and better to assume that the coronaries distal to the aortic wall are usually normal in pure, uncomplicated syphilis, and that coronary occlusions, anemic infarcts, necrosis of heart muscle, replacement fibrosis, aneurysms of ventricular walls, and fibrous myocarditis are almost entirely due to coronary injury dependent on an arteriosclerotic process and have nothing to do with syphilis. That rheumatism and other infections may also produce forms of interstitial myocarditis is obvious. But it appears that syphilis does not play an important part in the production of such lesions.

Microscopic Pathology of Cardiac Syphilis.—Five cases of uncomplicated and probably untreated aortic regurgitation were studied microscopically by Maher. The inflammatory reaction, presumably due to syphilis, by exclusion of other factors was found to be a lymphocytic and plasma cell infiltration about the coronary arteries and their branches and beneath the visceral pericardium. In the muscular tissue the invasion appeared between the fibers and can be demonstrated about the capillary walls.

Localization of Syphilitic Virus in Aorta.—McMeans believes that in syphilitic aortitis the intima is involved primarily by direct infection from the blood stream. It may also be involved from the adventitia through the vasa vasorum. Histologically, the lesions are the same. Undoubtedly, the most serious lesions produced by syphilis on the aorta and heart are the syphilitic aortic endocarditis with regurgitation and occlusion of the coronary orifices. This is intimal disease. Therefore, it would appear that syphilitic intimal disease of the aorta is more important clinically than is medial disease.

Heart and Aorta in Acquired and Congenital Syphilis.—A series of fifty-four cases of acquired and twelve cases of congenital syphilis are presented by Kurtz and Eyster, with especial reference to the fluoroscopic observations in the heart and aorta. Fluoroscopic evidence of aortitis was found in 90.7 per cent of the cases of acquired syphilis and in 36.4 per cent of the cases of congenital syphilis. Aneurysm of the aorta was found in 18.5 per cent of the cases of acquired syphilis and was absent in all the congenital cases. Cardiac enlargement was present in 38.9 per cent of the cases of acquired syphilis. In a group of twenty-three cases of acquired syphilis, exhibiting primarily central nervous system disease, 95.7 per cent showed evidence of aortic involvement, and aneurysm could be demonstrated in 21.8 per cent.

Symptoms and Course of Syphilitic Aortic Insufficiency.—Scott made postmortem clinical observations in 107 cases of syphilitic aortic insufficiency. Syphilitic involvement of the aortic orifice may appear as early as five years and as late as forty-eight years after the primary infection. The average time interval is around twenty years. Free aortic regurgitation appearing out of a clear sky in an adult with a negative cardiac history, and with no evidence of acute infection, should be regarded as syphilis until proved otherwise. Substernal pain and anginal attacks are not important symptoms in the type of cases here considered. Syphilitic aortic insufficiency is more common in the Negro than in the white person. The appearance of congestive heart failure in a patient with syphilitic aortic insufficiency is a grave omen.

Diagnosis of Syphilitic Aortitis with Negative Wassermann Reactions.—In the forty cases of syphilitic aortitis reviewed by Levine, the Wassermann reaction in the blood was negative in twelve instances. There remained four cases in which there was no history of syphilis and no evidence of either aneurysm or aortic insufficiency. Such cases might be diagnosed in life by more careful roentgenologic study and by an occasional finding of a positive Wassermann reaction only after a provocative test, combined with other clinical data that in general point to syphilis.

Relation of Syphilis to Hypertension.—A group of 666 patients with essential hypertension was studied by Horine and Weiss to determine whether syphilis was a possible etiologic factor. A control group of 2,000 nonhypertensive patients of similar ages and economic status was studied. The incidence of syphilis was practically the same in the hypertensive group as in the control group. Syphilis cannot have any etiologic bearing on essential hypertension.

Cardiac Observations in Children with Congenital Syphilis.—In contrast to the conditions found in acquired syphilis, Previtali et al. were not able to detect, by available methods of physical examination, any cardiovascular lesion in the fifty cases of congenital syphilis examined.

Heart Disease in Children Due to Congenital Syphilis.—Four hundred and seventeen patients with congenital syphilis ranging in age from 3 months to 42 years were studied by Givan with reference to heart disease being caused by *Spirochaeta pallida*. Up to the present moment not one of the cases has shown signs or other collected data that would lead one to make a definite diagnosis of syphilitic heart disease.

Congenital Syphilis as Cause of Heart Disease.—McCulloch asserts that there is no evidence in this study that congenital syphilis contributes to the incidence of heart disease in children up to the age of 15 years. That heart disease and sudden death may follow this type of infection later in life is not made clear by this study, but it may be supposed that instances of this sequel would be about equal to those that follow other acute infections of childhood.

Intravenous Arsenicals in Treatment of Cardiovascular Syphilis.—A clinical study on the effect of neoarsphenamine on the symptoms of patients with cardiovascular syphilis is presented by Hines and Carr. Symptomatic improvement is believed to be a neoarsphenamine effect in 57 per cent of the cases. Twelve per cent showed aggravation of symptoms; probable anatomic damage was produced in three patients. No cases of sudden death or aneurysmal rupture were noted. A higher percentage of improvement is noted in patients who have syphilitic aortitis without definite aneurysm or aortic regurgitation. If the drug is cautiously administered in small doses, patients functionally classed 2 b (American Heart Association) may be benefited by the drug. Improvement in the serologic reactions of the blood does not always parallel the symptomatic improvement. Although the lives of patients with cardiovascular syphilis are perhaps prolonged by neoarsphenamine treatment, there is no evidence in any case studied which shows that the disease was permanently arrested.

Treatment of Cardiovascular Syphilis.—Moore and Danglade assert that the treatment of cardiovascular syphilis is best accomplished by a combination of such routine medical measures as rest, restriction of activities, and digitalis together with antisyphilitic treatment. An acceptable method of antisyphilitic treatment is based on the avoidance of therapeutic shock (the Herxheimer reaction) and the therapeutic paradox by starting treatment cautiously with bismuth compounds or mercury and the iodides, by the use of long courses of small doses of neoarsphenamine or bismarsen, and by the prolongation of treatment for a minimum of two years with alternation of these drugs. A study of forty-three patients with aortic aneurysm demonstrates that life may be prolonged from an average of nine months from the onset of symptoms in untreated patients, to an average of sixty-nine months in patients receiving one year or more of such treatment. A study of ninety patients with aortic regurgitation and eight with various other forms of syphilitic cardiovascular disease shows that life may be prolonged from an average of thirty-two months from the onset of symptoms in untreated patients to an average of sixty-five months in patients receiving one year or more of such treatment. These data seem to demonstrate that properly directed antisyphilitic treatment is of great value in cardiovascular syphilis.

Principles Underlying Treatment of Cardiovascular Syphilis.—Wile emphasizes the fact that the treatment of syphilitic heart disease is always a treatment of the individual patient. Such cases as are amenable to an antisyphilitic regimen respond well if not pushed too hard and if treated before decompensation has occurred or after it has been temporarily relieved. The mechanical end-results of syphilitic disease of cardiovascular nature are in no way influenced by antisyphilitic treatment. In those cases of cardiovascular syphilis in which benefit is achieved, this not only occurs because of dispersion of active processes in the affected part of the cardiovascular system but in a large measure is due to the dispersion of remote foci elsewhere in the body. Such foci in untreated cases must act as predisposing and contributory factors in the ultimate breakdown of the cardiovascular system. Fully compensated cases of cardiovascular syphilis which have a good background of early treatment are frequently cases which need not and should not be treated. Except for tryparsamide in certain selected cases of aortitis, better results are achieved by the conservative use of mercury, bismuth compounds and iodide than by the arsphenamines. These comments are not intended as dogmatic, incontrovertible statements of fact but are based entirely on personal experience.

American Journal of Physical Therapy, Chicago

7: 265-308 (Oct.) 1930

Combined Methods in Chronic Cases: Case. J. W. Torbett, Marlin, Texas.—p. 271.
Eponyms of Medical Electricity. H. Goodman, New York.—p. 274.
Physical Treatment of Fibrositis. R. G. Gordon, Bath, England—p. 279.
Technic of Radium Therapy Today. D. C. L. Fitzwilliams, London, England.—p. 289.
Radon Seeds in Treatment of Carcinoma. H. S. Souttar, London, England.—p. 294.
The Long Look See. F. S. O'Hara, Springfield, Ill.—p. 298.
Superfluous Hair. H. Goodman, New York.—p. 302.

American Journal of Public Health, New York

20: 1055-1178 (Oct.) 1930

Training of Health Officers. J. C. Geiger, San Francisco.—p. 1055.
Home Pasteurization of Milk. L. Arnold and C. J. Gustafson, Chicago—p. 1065.
Boulder Dam Symposium: Sanitary Engineering Aspect. L. B. Reynolds, Stanford University, Calif.—p. 1071.
Immigration Aspect. F. T. Foard, Stockton, Calif.—p. 1080.
Problems of Sanitation at Headquarters Area During Construction of Boulder Dam. H. B. Hommon, San Francisco.—p. 1086.
Milk-Borne Disease in Massachusetts, 1927-1929. G. H. Bigelow and F. C. Forsbeck, Boston.—p. 1094.
Effective and Practical Definition of Pasteurization. L. C. Frank, Washington, D. C.—p. 1105.

American Journal of Tropical Medicine, Baltimore

10: 299-377 (Sept.) 1930

*Identity of Yellow Fever Lesions in Africa and America. O. Klotz and T. H. Belt, Toronto.—p. 299.
Yellow Fever Endemicity in West Africa: Protection Tests. H. Beeuwkes, J. H. Bauer and A. F. Mahaffy, Lagos, Nigeria.—p. 305.
Pellagra: Four Cases in San Francisco. A. C. Reed, San Francisco.—p. 335.
Production of Typical Calabar Swelling in Loa Patient by Injection of Dirofilaria Antigen: Nature of Calabar Swellings. A. C. Chandler, G. Milliken and V. T. Schuhardt, Houston, Texas.—p. 345.
Problem of Eradication of Strongyloides Intestinalis. A. L. Levin, New Orleans.—p. 353.
Hookworm Infestation in Indian (Guaimi) and Non-Indian Population of Panama. L. Schapiro, New York.—p. 365.

Identity of Yellow Fever Lesions in Africa and America.—Klotz and Belt have found that the quality of the lesions arising in yellow fever in Africa is similar to that of lesions occurring in American cases. Furthermore, the incidence of various types of changes in different tissues is broadly the same, with differences only in a few reactions which may be accounted for by the technic applied. In these more careful studies, applied to a larger number of cases, they have confirmed their previous observations that the nature of the pathologic processes arising in the yellow fever of Africa is identical with that of such processes occurring in American cases. Variations that have been observed in the quality of the lesions here described are compatible with the variations that have been found in the case of different strains of virus isolated in America and in Africa.

Colorado Medicine, Denver

27: 365-412 (Oct.) 1930

Problems in Medical Economics. W. A. Kickland, Fort Collins.—p. 369.
Treatment of 500 Cases of Vincent's Disease: Review of Literature. C. O. Giese and A. L. Briskman, Colorado Springs.—p. 374.
To Ministers of Gospel of Every Denomination. T. Beddoes, Clifton, England.—p. 380.
Infant Feeding Suggestions for General Practitioner. F. P. Gengenbach, Denver.—p. 382.
Agranulocytic Angina Following Administration of Neoarsphenamine: Case with Recovery Following Use of Sodium Thiosulphate. J. M. Foster, Jr., Denver.—p. 388.
Undulant Fever: Case. L. Huelsmann, Colorado Springs.—p. 393.

Kansas Medical Society Journal, Topeka

31: 351-390 (Oct.) 1930

Acute Intestinal Obstruction. R. D. Russell, Dodge City.—p. 351.
Diagnosis of Acute Osteomyelitis. E. E. Morrison, Great Bend.—p. 354.
Clinic: "Jake" Paralysis. M. L. Perry and J. P. Kaster, Topeka.—p. 356.
Cause of "Jake" Paralysis. E. R. Millis, Kansas City.—p. 359.
Epidemiologic Investigation of Jamaica Ginger Paralysis Cases. E. G. Brown, Topeka.—p. 362.
Pyelitis. O. W. Davidson, Kansas City.—p. 365.
Head Injuries. W. D. Abbott, Des Moines, Iowa.—p. 369.
Cesarean Section: Increase in Indications: Other Methods in Delivery. J. B. Henry, Lawrence.—p. 372.
Insulin in Large Doses. H. E. Marchbanks, Pittsburg.—p. 374.

New England Journal of Medicine, Boston

203: 757-806 (Oct. 16) 1930

Fibromyomata of Uterus Complicating Pregnancy. R. S. Benner, Springfield, Mass.—p. 757.
*Value and Limitations of Spinal Anesthesia. J. B. Deaver and J. C. Eckels, Philadelphia.—p. 760.
Use of Thymophysin in Labor. M. Davis, Boston.—p. 771.
Number of Physicians Consulted by Tuberculous Patients and Reasons for Changing from One to Another. L. R. Williams and A. M. Hill, New York.—p. 782.
*Hydrochloric Acid and Diarrhea. E. S. Emery, Jr., Boston.—p. 785.
Operative Treatment of Tuberculous Arthritis. C. F. Painter, Boston.—p. 787.

Value and Limitations of Spinal Anesthesia.—A report of the results following 2,302 administrations of spinal anesthesia is submitted by Deaver and Eckels which, together with a previous report, totals 4,553 spinal anesthesias from one clinic. The advantages and disadvantages of this type of anesthesia are discussed from a clinical point of view. A technic of administration that has proved practical and efficacious is given in detail. A graphic study of the blood pressure before, during and after anesthesia is incorporated. Two fatalities are reported.

Hydrochloric Acid and Diarrhea.—Forty-seven cases are reported by Emery which failed to show free hydrochloric acid on one or more gastric analyses. Ruling out those cases in which a true achylia gastrica probably did not exist, the incidence of diarrhea in this series is too small to justify the idea that an absence of hydrochloric acid is a cause of diarrhea. This is in accord with knowledge of intestinal disturbance in pernicious anemia and with a study of the stools. It seems more probable that the achlorhydria and the diarrhea are symptoms of the same condition.

New Jersey Medical Society Journal, Orange

27: 751-824 (Oct.) 1930

Place of Physician in School Health Program. A. G. Ireland, Trenton.—p. 751.
Physician and Contribution to Education, from Viewpoint of School Administrator. F. G. Pickell, Montclair.—p. 752.
Developments of School Health Program as Seen by School Nurse. E. T. Walker, Monmouth County.—p. 755.
School Health Work from Physician's Point of View. S. Nichols, Asbury Park.—p. 758.
Contribution of Physical Education to School Health Program. F. W. Maroney, Atlantic City.—p. 761.
Jew in Medicine from Biblical to Modern Times. M. Danzis, Newark.—p. 763.
Clinical Results with New Magnesium Compound. C. M. Trippe, Asbury Park.—p. 776.
Medicolegal Aspects of Low Back Injuries. M. Kummel, Newark.—p. 785.
Recent Advances in Diagnosis and Therapy. H. I. Goldstein, Camden.—p. 788.

Northwest Medicine, Seattle

29: 443-498 (Oct.) 1930

Cystectomy with Bilateral Transplantation of Ureters in One Operation: Five Cases. R. C. Coffey, Portland, Ore.—p. 443.
*Obstetric Cases at Minneapolis General Hospital. F. L. Adair, Chicago, and M. S. Sichel, Portland, Ore.—p. 450.
America's High Maternal Mortality Rate. F. L. Wood, Lynden, Wash.—p. 456.
Treatment of Salpingitis: Bell-Beuttner Operation. A. Mathieu, Portland, Ore.—p. 460.
Manipulative Obstetrics. J. H. Sayer, Seattle.—p. 464.
Relation of Gallstones to Pregnancy: Case. R. L. Zech, Seattle.—p. 468.
Recent Advances in Infant Feeding E. J. Barnett, Spokane, Wash.—p. 473.
*Experience with Evaporated Milk in Infant Feeding. H. C. Olmsted, Seattle.—p. 475.
Training Child to Eat. C. E. Hunt, Eugene, Ore.—p. 478.
*Infantile Tetany: Two Cases Developing Active Symptoms While Receiving Viosterol. N. W. Clein, Seattle.—p. 482.

Obstetric Cases at Minneapolis General Hospital.—A statistical survey of 7,226 obstetric cases, occurring during a five year period at the Minneapolis General Hospital, is presented by Adair and Sichel. There were 5,911 maternity cases in the series with 30 deaths, a mortality of 0.51 per cent. Puerperal sepsis was responsible for 43.3 per cent of these deaths. There were 1,272 abortion cases with 26 deaths, a mortality of 2.04 per cent. Sepsis was responsible for 84.6 per cent of these deaths. There were 46 extra-uterine pregnancies with 1 death, a mortality of 2.3 per cent. There were 5,483 recorded fetal presentations, with the occiput presenting in 96 per cent, the breech in 3.4 per cent, the face in 0.3 per cent, the brow in 0.05 per cent, and the shoulder in 0.25 per cent. Second degree perineal lacerations occurred in 8.7 per cent and third degree in 0.24 per cent of the series. Episiotomy was performed in 4.2 per cent. Forceps were applied in 3.3 per cent of the series, with a maternal mortality of 3.3 per cent and a fetal mortality of 7.5 per cent. Podalic version and extraction was performed in 0.93 per cent with a maternal mortality of 3.8 per cent and a fetal mortality of 45.3 per cent. There were twenty-six cases of placenta praevia treated, with a maternal mortality of 4 per cent and a fetal mortality of 46.1 per cent. There were twenty-nine cases of convulsive eclampsia treated, with a maternal mortality of 14 per cent and a fetal mortality of 52 per cent. The entire fetal mortality was 7.7 per cent. Of these, 2.9 per cent represented stillbirths and 4.8 per cent were neonatal deaths. By subtracting the seventeen previable stillbirths and the fifteen previable neonatal deaths, a corrected mortality rate of 2.6 per cent for the stillbirths and 4.5 per cent for the neonatal deaths is obtained, making a total corrected fetal mortality rate of 7.1 per cent.

Experience with Evaporated Milk in Infant Feeding.—Olmsted recommends the use of unsweetened evaporated milk in infant feeding because: It is entirely adequate from a nutritional standpoint when fed in conjunction with other foods and vitamins; it can be given in a concentrated state equivalent to whole cow's milk; it is easily digested; it is palatable, from the infant's standpoint; it is cheap and easily procurable. Personal experiences with this food are discussed.

Infantile Tetany.—Clein reports two cases in which active symptoms developed while viosterol was being given, for two and seven months, respectively. Both patients responded readily when the dosage was increased over that which they had been receiving.

Pennsylvania Medical Journal, Harrisburg

34: 1-70 (Oct.) 1930

Medical Education, State Licensure and Regulation of Practice of Healing Arts. R. V. Patterson, Philadelphia.—p. 1.
Internal Drainage of Gallbladder. W. A. Steel, Philadelphia.—p. 7.
Undulant Fever. G. S. Enfield, Bedford.—p. 9.
Acute Gonorrhea: Male. T. R. Fetter, Philadelphia.—p. 10.
Epidemic of Trichinosis in Berks County. P. Jaisohn, Reading.—p. 16.
Diagnosis of Tumor of Carotid Body. M. W. Bodine, Sayre.—p. 17.
Epilepsy vs. Diabetes. M. Trumper, Philadelphia.—p. 18.
Death Certificate Deficiencies. H. B. Wood, Harrisburg.—p. 21.
Cancer of Uterus: Preventable Disease. J. M. Fisher, Philadelphia.—p. 23.
Syphilitic Dactylitis. D. M. Sidlick and H. G. Munson, Philadelphia.—p. 29.
Chronic Coughs in Children. T. E. McMurray, Wilkinsburg.—p. 30.
*Bilateral Cryptorchid. Noneunuchoid and Allegedly a Father. M. Levin, Philadelphia.—p. 33.
Primary Pneumococcal Peritonitis. T. J. Ryan, Philadelphia.—p. 35.
Tularemia in Pennsylvania: Case. W. M. Kunkel, Harrisburg.—p. 36.
*Abdominal Pregnancy: Case. A. W. Thrush, Chambersburg.—p. 37.
Cavernous Sinus Thrombosis. F. S. Mainzer, Clearfield.—p. 38.

Bilateral Cryptorchid.—Levin reports the case of a man, aged 33, with bilateral cryptorchidism. Neither testis was in the scrotum or inguinal canal. There was no evidence of eunuchoidism. The patient began to have coitus at the age of 17. He was reputed to have become, at the age of 28, the father of a child. For the past five years he had a psychosis (apparently a psychoneurotic depression), attended by great diminution in sexual desire and potency. When examined, at 33, the prostatic secretion did not contain spermatozoa.

Abdominal Pregnancy.—In Thrush's case the fetus developed to almost full term and was living at the beginning of labor. Fecundation presumably took place in some part of the left fallopian tube, which evidently ruptured, probably about the end of the third month, and the ovum with its sac intact escaped into the abdomen and became attached to the posterior and left external surface of the fundus of the uterus. Examination showed a loop of intestine probably 8 inches in length protruding from the vaginal orifice, which was replaced, and retained with a gauze pack. Dilation of the vaginal canal disclosed a tear in the vaginal wall on the left side, extending across the front of the uterus, well above the cervix toward the right to a point well beyond the median line. This tear, of course, was sufficiently large to allow the passage of the fetus. From the nature of this tear in the vaginal wall it was evident that the baby descended between the uterus and the bladder on the left side and that, during the passage of the head, the uterus must have been displaced to the right sufficiently to clear the canal of the pelvis and allow the head to descend. The patient had a fairly comfortable night. Continuous hypodermoclysis of salt solution was given under the left breast. The patient had no untoward symptoms on that day, but on the following day there was some distention of the abdomen. This slowly increased. Enemas failed to produce a bowel movement. The pulse became more rapid and wiry. There were several attacks of faintness. The temperature was normal with rises not exceeding 100 F. during the day. The patient gradually grew weaker and died about 100 hours after delivery.

Public Health Reports, Washington, D. C.

45: 2509-2607 (Oct. 17) 1930

*Pharmacologic Action of Certain Phenol Esters: Etiology of So-Called Ginger Paralysis. M. I. Smith, E. Elvove and W. H. Frazier.—p. 2509.
Undulant Fever: Brucella Infection in Iowa. A. V. Hardy, C. F. Jordan, I. H. Borts and G. C. Hardy.—p. 2525.

Pharmacologic Action of Phenol Esters.—A pharmacologic study made by Smith et al. of the action of the phosphoric acid esters of phenol and some of the cresols has shown conclusively that triorthocresyl phosphate, and, so far as the present evidence goes, it alone, can produce in experimental animals a specific type of motor paralysis of the extremities in every sense comparable with that which occurred recently in human victims who drank of an adulterated fluidextract of jamaica ginger. Some of the differences in species susceptibility to triorthocresyl phosphate previously reported appear now to be due to differences in its absorbability from the alimentary canal. Certain other differences in species susceptibility cannot yet be accounted for on the basis of present limited knowledge of the manner of action of this poison in the animal body. Pharmacologic evidence has been presented to show conclusively that the adulterated fluidextract of jamaica ginger used for beverage purposes, resulting in an epidemic of partial paralysis, contained triorthocresyl phosphate to the extent of about 2 per cent. The chemical evidence secured confirms the pharmacologic evidence and fully harmonizes with it. The etiologic relationship of triorthocresyl phosphate to the recent epidemic of so-called ginger paralysis is thus definitely established.

Radiology, St. Paul

15: 531-626 (Nov.) 1930

Pathology of Renal Tumors. A. Graham, Cleveland.—p. 531.
Radiation Therapy of Tumors of Genito-Urinary Tract. U. V. Portmann, Cleveland.—p. 542.
Clinical Aspects of Genito-Urinary Tumors. W. E. Lower, Cleveland.—p. 544.
Tumors of Urinary Tract. B. H. Nichols, Cleveland.—p. 547.
Spondylitis Traumatica Tarda (Kummell's Disease). E. S. Blaine, Chicago.—p. 551.
*Verruca Plantaris. J. N. Sisk, Madison, Wis.—p. 564.
Sarcoma of Stomach. R. J. Reeves, New York.—p. 567.
High Milliamperage Technic. J. D. Lawson, Woodland, Calif.—p. 574.
Effect of Varying Volumes of Air on Distribution of Roentgen Energy in Nonhomogeneous Medium. E. T. Leddy and V. Witting, Rochester, Minn.—p. 579.
Use of Radium and Deep Therapy Roentgen Ray for Last Seven Years in Private Clinic in Maine: Problems of Small Community. B. Hunt, Bangor, Me.—p. 585.
Attachment for Sweet Eye Localizer. H. B. Thompson, Seattle.—p. 590.
Method for Controlling Petrous Temporal Shadow. W. A. Rush, Beatrice, Neb.—p. 591.
Time Switch of Unusual Design. R. B. Taft, Charleston, S. C.—p. 592.
Status Thymicolymphaticus: Acute Edema of Lungs: Case. C. W. Perkins, Norwalk, Conn.—p. 595.

Verruca Plantaris.—Sisk has made a study of fifty-three cases successfully treated by the roentgen ray. Three of the patients had had three treatments with electrodesiccation three months previous to roentgen treatment; they complained of pain with electrodesiccation and the result was unsuccessful. One patient had had one radium treatment of an hour's duration, without noticeable results. The surgical treatment has been observed in three cases; the result was satisfactory but the convalescent period was long and was associated with considerable pain and some disability. With the exception of two cases, pain was relieved after the fourth day following the first roentgen treatment and the convalescent period was about four weeks; the longest period was seven weeks, at which time all evidence of the growth had disappeared. The technic is a dose twice the time required to produce a mild erythema on the flexor surfaces, with unfiltered radiation limited to the bounds of the lesion, followed, if required, in three weeks by a dose of one and one-half erythema intensity. In only two cases was it necessary to give further irradiation—the greatest number of treatments was five in a single case. In none of the cases was there a period of disability. Many of the patients mentioned that the sites treated were slightly tender to pressure for a day or two, several days after the first treatment.

South Carolina M. Assn. Journal, Greenville

26: 219-246 (Sept.) 1930

Resection of Prostate Gland Obstruction. T. M. Davis, Greenville.—p. 222.
Sodium Isoamylethyl Barbiturate as General Anesthetic. B. R. Baker, Charleston.—p. 231.
Childhood Tuberculosis. E. Cooper, State Park.—p. 234.
Confusion of Pellagra with Sprue: Case. E. A. Hines, Jr., Spartanburg.—p. 236.

Texas State Journal of Medicine, Fort Worth

26: 399-468 (Oct.) 1930

*Hypothyroidism in Pregnancy. C. F. Brown, Dallas.—p. 406.
Ocular Lesions in Syphilis: Discussion of Other Aspects of Disease. E. H. Cary, Dallas.—p. 410.
Maxillary Antrum as Focus of Infection. L. Daily, Houston.—p. 414.
Herpes Zoster Ophthalmicus in Relation to Sympathetic Ophthalmia and Inner Ear Lesion. I. Sommer, Chicago.—p. 421.
Posterior Longitudinal Bundle and Connections: Nystagmus. E R. Carpenter, Dallas.—p. 425.
Slit Lamp in Diagnosis of Intra-Ocular Foreign Bodies. R. Castroviejo, Chicago.—p. 428.
Rapid Diagnosis of Malignant Tumors. B. T. Terry, Rochester, Minn.—p. 434.
Malignancy of Body of Uterus. O. L. Norsworthy, San Antonio.—p. 440.
Unhealthy Mouths, a Public Health Problem. W. O. Talbot, Fort Worth.—p. 444.
Value of Curative Medicine in Public Health. A. H. Flickwir, Fort Worth.—p. 447.
Treatment of Shock in Rattlesnake Bites. M. L. Crimmins, Fort Bliss.—p. 449.

Hypothyroidism in Pregnancy.—A case of hypothyroidism is presented by Brown which was followed through pregnancy and for one year following delivery, 8,880 grains (about 575 Gm.) of thyroid extract being given in twenty-four months without symptoms of overdosage. A child of the mother in the case reported was followed through its first year and showed no signs of thyroid deficiency.

United States Naval Med. Bulletin, Washington, D. C.

28: 711-891 (Oct.) 1930

Mobile Battalion Aid Station Equipment for Use with United States Marine Corps Expeditionary Forces. W. M. Garton and R. G. Heiner.—p. 711.
Intravenous Urography with Uroselectan. J. Duff.—p. 715.
Antipendulum Extension Apparatus and Fracture Frame. C. M. Shaar.—p. 718.
Physiologic Effects of High Concentrations of Carbon Dioxide. E. W. Brown.—p. 721.
Thoughts for Future. K. C. Melhorn.—p. 734.
Gunfire Deafness in Navy. G. B. Ridout.—p. 736.
Designations Used in Recording Admissions to Sick List. L. Willige.—p. 740.
Improvement in Diet for Submarine Crews. B. H. Adams.—p. 744.
Medical Mycology. G. W. Cooper.—p. 745.
Influenzal Pneumonia. T. M. Arrasmith, Jr.—p. 769.
Compression of Medulla and Upper Segment of Spinal Cord by Osteitis of Atlas and Axis: Case. H. F. Lawrence.—p. 783.
Medical Surveys: From Viewpoint of Recruiting Examiner. G. F. Cooper.—p. 787.

West Virginia Medical Journal, Charleston

26: 577-640 (Oct.) 1930

Surgical Treatment of Pulmonary Tuberculosis. C. A. Hedblom, Chicago.—p. 577.
Prevention of Puerperal Infection. T. W. Nale, Edwight.—p. 580.
New Radical Mastoid Operation. J. M. Smith, New York.—p. 586.
Relation of Sinus Disease to Pulmonary Infection: Standpoint of Roentgenologist. W. F. Manges, Philadelphia.—p. 588.
Mental Hygiene in Infancy and Childhood. A. E. Amick, Bluefield.—p. 593.
Obstruction to Upper Urinary Tract. L. H. Brumback, Hagerstown, Md.—p. 599.
Oral Focal Infection. D. C. Clark, Morgantown.—p. 602.
Pellagra. W. V. Wilkerson, Montgomery.—p. 604.
Rectal Administration of Digitalis. E. Podolsky, New York.—p. 606.
Preliminary Report of 100 Consecutive Appendectomies Without a Death. B. I. Golden, Elkins.—p. 607.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. Actinotherapy & Physiotherapy, London

5: 133-158 (Oct.) 1930

Ultraviolet Treatment of Tuberculosis at Municipal Clinic. J. O. Murray.—p. 135.
Light Therapy in Lupus. R. Volk.—p. 139.
Light Bath Treatment of Tuberculous Peritonitis. O. Chievitz.—p. 142.
Results of Artificial Light Treatment for Tuberculosis. G. L. Cox.—p. 143.
Treatment of Tuberculosis of Pleura by Ultraviolet Rays, Infra-Red Rays and Diathermy. E. Biancani and H. Biancani.—p. 147.
Tuberculosis of Cervical Glands and Ultraviolet Light Therapy. C. L. Pattison.—p. 148.
Light Therapy in Pulmonary Tuberculosis. J. Sorgo.—p. 149.

British Medical Journal, London

2: 549-586 (Oct. 4) 1930

Analgesia and Anesthesia in Childbirth. A. L. McIlroy.—p. 549.
*Radiography During Operation for Renal Calculus. R. J. Willan.—p. 552.
Treatment of Paranasal Suppuration Persisting After Operation. A. J. M. Wright.—p. 553.
Avertin. F. B. Parsons.—p. 554.
Congenital Radio-Ulnar Synostosis. D. J. Davies.—p. 557.
Outbreak of Puerperal Fever in Nursing Home. J. S. Manson.—p. 558.
*Blood Calcium in Diabetic Retinitis. R. D. Lawrence, K. Madders and H. R. Millar.—p. 559.
Marked Hyperglycemia Without Glycosuria. G. H. C. St. G. Griffiths.—p. 559.
*New Paste Bandage for Treatment of Varicose Ulceration and Phlebitis. C. J. Cellan-Jones and K. M. Cellan-Jones.—p. 560.
Henoch's Purpura in Adult. H. W. Pooler.—p. 562.
Fracture of Frontal Bone Involving Frontal Sinus: Formation of Intracranial Pneumocele. H. M. Grey.—p. 562.
Secondary Abdominal Pregnancy. H. F. Blacklee.—p. 562.

Radiography During Operation for Renal Calculus.—Willan asserts that radiography of an exposed kidney is a method that has come to stay. It is helpful in guarding against the recurrence of a stone. Detection of the exact site of a renal calculus by radiography is invaluable in preventing the needless sacrifice of renal tissue. Illustrative cases are given: (1) of a previously known renal calculus; (2) of an occasion when a uric acid stone was suspected but whose presence could not be proved prior to radiography of the exposed kidney; (3) of a man in whom, after supposed removal of all the calculi, a remaining stone was detected by radiography and removed; (4) of a sequel to a nephrolithotomy performed eight years before, the result being a functionless kidney owing to the extensive trauma at that operation.

Blood Calcium in Diabetic Retinitis.—Ten unselected patients with retinitis were examined by Lawrence and his associates. They were unable to detect any abnormality in the serum calcium contents of these patients. The average serum calcium of these ten cases was 9.6 mg. per hundred cubic centimeters; the lowest figure was 8.6, and the highest 11 mg. Seven cases fell between 9 and 10.5 mg., and in no case, therefore, was an abnormally low or high figure obtained. Five of the patients were males and five females. The average age was 61 years, the youngest being 44 and the oldest 71. Seven cases were severe enough to require insulin. The minimum ascertainable duration of the diabetes was two years, the maximum twenty years. Three patients showed traces of albuminuria without other evidence of Bright's disease; in them the retinal picture was that of diabetic retinitis alone. Gross arteriosclerosis was not a noticeable feature. The mean systolic pressure was 150 mm. of mercury, the diastolic 90; the highest systolic pressure was 185, the lowest 100. It is clear, therefore, that true Bright's disease and hyperpietic arteriosclerosis were not important etiologic factors in these cases, which appear to be really "diabetic" in nature.

Paste Bandage for Treatment of Varicose Ulceration.—The paste devised by the Cellan-Joneses contains the following substances in parts by weight: zinc oxide, 10; glycerin, 10; sterilized refined glue, 4; acacia, 5, and water, 30. When cold, this is a viscous medium which becomes much more fluid on warming. A sufficient quantity is placed in a double-jacketed basin and warmed by hot water. A bandage of requisite length and width is wound on one roller of the machine and carried through the basin, under a series of crossbars, to a second roller, where it is rewound after being thoroughly soaked in the warm paste. In this way a bandage impregnated with zinc oxide and possessing highly adhesive properties is produced. The bandages are wrapped in grease-proof paper and are stored ready for use in air-tight tins. They never solidify but remain soft, sticky and quite pliable, even when kept for months. No preparation is required before they are applied in the same fashion as ordinary cotton bandages.

2: 587-626 (Oct. 11) 1930

Intra-Epithelial Growth of Carcinoma. R. Muir.—p. 587.
Effects of Hypertonic Saline in Toxemias of Later Pregnancy. V. J. Harding and H. B. Van Wyck.—p. 589.
Fractures of Patella. R. W. Jones.—p. 592.
*Modification in Tracheotomy. H. G. B. Russell.—p. 594.
*Etiology of High Blood Pressure. R. G. Waller.—p. 595.
Prevention of Tuberculosis by Means of Tuberculin. R. Carswell.—p. 597.
Forty Cases of Hydatid Disease. C. H. Cuff.—p. 599.
Foreign Bodies in Upper Conjunctival Fornix. T. Colley.—p. 600.
Nicotine Poisoning by Absorption Through Skin. D. J. B. Wilson.—p. 601.
Normal Puerperium Following Labor in Latrine. J. S. Manson.—p. 602.

Modification in Tracheotomy.—Russell proposes that tracheotomy should be preceded as a routine by an attempt at intubation of the trachea, with a view to rendering the operation easier and safer of performance; and that the nasal route should be chosen rather than the buccal, whether local or general anesthesia is employed. To this end it is urged that the tracheotomy set, which should have a place in every operating theater, should comprise a catheter suitably curved on a stylet, with a spray duly charged with cocaine; and that students should be shown the maneuver of nasal intubation—for example, during their period of anesthetic instruction. The acquisition of familiarity with this simple procedure should render a house physician's first tracheotomy a less alarming affair than it sometimes proves.

Etiology of High Blood Pressure.—Waller concludes that hypertension is due to the presence in excess of a specific amino-acid. This excess may be due to retention resulting from renal disease, to overproduction, or more probably to some impairment of hepatic function whereby this body is not efficiently destroyed.

Edinburgh Medical Journal

37: 569-608 (Oct.) 1930

Circulating Fluid. G. L. Gulland.—p. 569.
Paramastoid Process in Human Subject and Association with Deformation of Atlas and Epistropheus. D. M. Greig.—p. 582.

Glasgow Medical Journal

33: 153-208 (Oct.) 1930

Asthma. J. Adam.—p. 153.
*Septic Coronary Thrombosis with Myocardial Infarction, Embolic Infarction of Complete Kidney and Death from Uremia. A. A. F. Peel.—p. 168.

Septic Coronary Thrombosis.—The clinical features of interest in the case reported by Peel were: History of a mild infection associated with nasal catarrh, shivering and malaise. Four days later, sudden onset of symptoms suggesting myocardial infarction, which persisted for twelve hours in acute form. Recurrence of the cardiac symptoms after a further thirty-six hours with extreme disturbance of the peripheral circulation. While these symptoms persisted, supervention of tenderness in the right loin, absolute anuria, delirium, and evidence of uremia prior to death after thirty-six hours more. The pathologic conditions found (given in the order of the probable age of each lesion) were: Subacute diffuse nephritis. Septic endarteritis of a branch of the left circumflex coronary artery, with various stages in the formation of septic thrombi in its smaller divisions. Numerous areas of necrosis of the heart muscle, mainly periarterial, within the area of distribution of the affected vessel. Septic interstitial myocarditis limited to the area of distribution of the affected vessel. Secondary endocarditis of the overlying area of endocardium; intraventricular thrombosis. Embolus in right renal artery with complete infarction of right kidney; embolus in basilar artery. Congested, edematous brain. Generalized acute venous congestion. "Septic spleen." The cardiovascular system was remarkably free from degenerative pathologic changes in a man of his years (59), atheromatous changes being limited to one ulcer in the abdominal aorta, a few minute flecks of early atheromatous infiltration of the ascending aorta, and one or two similar flecks in the coronary arteries close to their origin; no evidence of arteriosclerosis either in the arteries or in the shape of preexistent renal disease of chronic type. On the other hand, the arteries showed an interesting congenital peculiarity, the medium-sized arteries being extremely thin walled and difficult to distinguish from the veins macroscopically, and the abdominal aorta being unusually narrow. This condition had not given rise to any symptoms during life.

Annales de l'Institut Pasteur, Paris

45: 291-414 (Sept.) 1930

Diphtheria Toxoid in Active Immunization of Human Beings and in Prophylaxis of Diphtheria. G. Ramon.—p. 291.
Specific Antitoxin Content of Serum of Persons Vaccinated with Diphtheria Toxoid. G. Ramon and R. Debré.—p. 326.
Toxins and Antitoxins: Composition and Method of Union. S. Schmidt.—p. 337.
Tetanus Antitoxin: Technic of Production and Results of Use. P. Descombey.—p. 373
Unicity or Plurality of Rabies Virus. P. Remlinger and J. Bailly.—p. 376.
*Syphilis: Bismuth Therapy. A. Schwartz.—p. 386.
Certain Strains of Leptospira. J. E. Dinger and F. Verschaffelt.—p. 396.

Syphilis: Bismuth Therapy in Fournier's Clinic.—Schwartz describes the results obtained by bismuth therapy in more than 5,000 syphilitic patients during a period of ten years. The preparations of insoluble bismuth salts in oil suspension that were used during the first few years produced uniformly excellent results. Their action was not quite so rapid as that of arsenic but was fully as efficacious. In fact, lesions that had resisted treatment by arsenic and mercury yielded to bismuth. In addition to this, the bismuth treatment caused none of the dangerous reactions that are likely to follow the injection of arsphenamine. However, the insoluble bismuth salts were not so rapid in their action as arsphenamine, their absorption was sometimes irregular, and the results were hard to regulate because of the impossibility of accurate measurement of the quantity of metallic bismuth in the suspension. Fournier and Guenot endeavored, therefore, to perfect the method so as to eliminate these difficulties. The result of their efforts was the development of the use of bismuth salts soluble in oil or liposoluble bismuths. These preparations are as rapid in their action as arsphenamine and have a more constant and lasting serologic action. Bismuth resistance has not been observed in any of the patients so treated in the clinic, and the results have been highly successful. The method now employed is that of intramuscular injections of 2 cc. of oil solution containing an equivalent of 0.08 Gm. of metallic bismuth, from ten to twelve injections usually being sufficient. The first three injections are given every two or three days and the later ones twice a week.

Presse Médicale, Paris

38: 1257-1272 (Sept. 17) 1930

*Electrocardiographic Anomalies in Infectious Diseases. A. Clerc and R. Levy.—p. 1257.
*Spasm of Oddi's Sphincter as Cause of Jaundice. I. Nanu-Muscel and I. Pavel.—p. 1260.

Electrocardiographic Anomalies in Acute Infectious Diseases.—Clerc and Levy are convinced that the anomalies revealed by electrocardiography in infectious diseases are worthy of serious consideration both as a confirmation of anatomic and clinical observations and for their independent semeiologic and prognostic value in cases in which more obvious manifestations are lacking. For instance the elongation of the P-R interval in a severe case of endocarditis showed the existence of acute rheumatism, although there was no evident arthralgia; medication with salicyl compounds gave good results. While the results thus far obtained have not determined the exact future indications in the various electrocardiographic anomalies observed, they have shown that conditions may be revealed in this way even when the physical examination is negative and that the persistence of the anomalies may have marked significance.

Spasm of Oddi's Sphincter as Cause of Jaundice.—Nanu-Muscel and Pavel describe two cases in which chronic jaundice was caused by a spasm of Oddi's sphincter due to pancreatic disturbances. In the first case, the primary infection was a chronic pancreatitis, in the second it was a cancer of the head of the pancreas. In the latter case, although the cancer itself might later have caused the jaundice, the spasm of the sphincter occurred before the cancer was sufficiently developed to constitute a mechanical obstacle. From the therapeutic standpoint, a purely medicinal treatment to counteract the original infection is usually sufficient. In the first of the cases described the patient was cured by intravenous injection of methenamine and sodium salicylate. The authors are convinced that a reflex spasm of Oddi's sphincter is the direct cause of a great many cases of chronic or prolonged jaundice both when no mechanical obstruction can be determined, as in the case of chronic pancreatitis which they describe, and as a preliminary or a coexistent functional obstacle when there is also a mechanical obstacle present.

38: 1273-1288 (Sept. 20) 1930

*Parenteral Hepatotherapy in Anemia. C. Achard and M. Hamburger.—p. 1273.
Use of Preoperative Vaccination in Operation on the Stomach. J. Murard—p. 1274.
*Digestive Troubles from Artificial Pneumothorax. L. Bonafé and H. Mollard.—p. 1277.
Diabetes: Bouchardat's Diet. ,F. Maignon.—p. 1280.

Parenteral Hepatotherapy in Anemia.—The classic method of hepatotherapy, that of eating raw liver, produces excellent results in the treatment of anemia. However, several weeks of treatment is usually necessary before much amelioration is perceived, which is disastrous in many severe cases. Extract of liver taken by mouth often causes serious digestive disturbances and can rarely be tolerated by a patient for more than a few days. Achard and Hamburger gave intramuscular injections of liver extract in several cases with good results. This method permits the initial injection of quantities of extract far superior to the amount of liver that could be taken orally; its action is therefore more rapid. The organism also seems to absorb the extract more rapidly when so administered than when it passes through the digestive tract. The only objection to the method of intramuscular injection is the fact that painful cutireactions often occur that necessitate discontinuing the treatment. To avoid this the authors tried giving intravenous injections instead of intramuscular ones. While the patient tolerated the injections perfectly, the amelioration thus effected was only temporary. However, the intravenous method has not been given a systematic trial and might prove more successful. At any rate, intramuscular injection has proved itself to be valuable as a treatment of attack to bring immediate results, and if the patient should find that the injections are too painful, the classic method may be resumed when the cure is under way.

Digestive Troubles from Artificial Pneumothorax.—The digestive troubles often observed in connection with an artificial pneumothorax are sometimes localized in the stomach, intestine or liver, and are sometimes general. In cases of gastric localization the patient begins to eat with good appetite but his stomach soon feels full, painfully enlarged and heavy. Often the discomfort is increased when he is in a recumbent position. Vomiting also occurs frequently. In a few cases the reaction may be caused by the purely mechanical action of the pressure of the diaphragm on the gastric organs. However, Bonafé and Mollard believe that in most cases it is due to a reflex associated with a condition of aerophagy. In the intestinal tract, the chief manifestations noted are diarrhea and symptoms of tuberculous enteritis. These are not, however, the direct result of the pneumothorax; the infections were already present and their appearance was merely accelerated by the operation. The hepatic disturbances that are observed in rare instances are undoubtedly caused by the purely mechanical action of the lowered diaphragm. Often instead of a localized reaction the patient merely loses weight and feels a general loss of appetite, which is undoubtedly caused by the interruption of the normal function of the lungs in lipodieresis and neutralization of toxins. All these digestive disturbances are benign and disappear within a few weeks. They are, therefore, in no way an argument against the use of the pneumothorax.

38: 1289-1304 (Sept. 24) 1930

Morphologic Type of Resistance to Pulmonary Tuberculosis. A. Jacquelin. —p. 1289.
*Ambulatory Treatment of Diabetes for General Practitioner. J. J. de Jong.—p. 1292.

Ambulatory Treatment of Diabetes for General Practitioner.—De Jong describes a treatment of diabetes that can be used by any physician and that permits the patient to continue his normal life. It consists merely of a simple diet to reduce the glycosuria. The initial daily ration is 200 Gm. butter and 1,000 Gm. legumes (1,700 calories). In addition, he sanctions coffee, tea, mineral water and red wine. The patient comes to the clinic for urinalysis every few days. When the glycosuria has disappeared, as should be the case within two weeks, one egg or 50 Gm. of potatoes is added to the diet. In a few days, if the potatoes were chosen, an egg is added or vice versa. Then an additional 50 Gm. of potatoes and a second egg are included. The daily diet is thus 1,000 Gm. of legumes, 200 Gm. of butter, 100 Gm. of potatoes and two eggs, a total of 1,962 calories. This diet is generally reached in three weeks. If the patient remains aglycosuric, the writer adds 20 Gm. of bread and 25 Gm. of cheese. Little by little, fruits, meat, fowl, fish and lard are added and at the same time the quantity of legumes and butter is diminished, until after several weeks the patient has an adequate and varied diet at his disposal. This treatment is manifestly impossible in cases that show complications such as tuberculosis or infections of the heart, which require special clinical care. The patient should moreover be most carefully watched during the first two weeks; if at the end of that time glycosuria still persists, insulin treatment is probably necessary. However, many chronic cases of diabetes may be successfully relieved by this means, especially if the physician explains the nature of the disease to the patient, so that he understands the importance of strict adherence to the prescribed diet.

Archivio Italiano di Urologia, Bologna

6: 445-540 (Sept.) 1930

Modifications Induced by Presence of a Foreign Body in Ureteral Stump Following Nephrectomy. P. Pieraccini.—p. 445.
*Roentgen Examination of Tuberculous Kidney. R. Rinaldi.—p. 481.
*Single Congenital Ectopic Hydronephrotic Kidney. A. Marsella.—p. 495.
*Significance of Aberrant Renal Vessels for Pathogenesis of Uropyonephrosis. V. Lozzi.—p. 515.

Roentgen Examination of Tuberculous Kidney.—Rinaldi points out that there are many anatomic varieties of renal tuberculosis and that arteriography will reveal only a stenosing panarteritis, which gives no precise information. To pretend that arteriography will permit the roentgen demonstration of all tuberculous lesions of the kidney is absurd. Possibly the Dos Santos method will show whether the functional deficit, so early observed in tuberculous kidney when the specific lesions are still slight, is the consequence of an advanced arterial insufficiency of the kidney itself. It is possible that the future will change totally the practical interest of this new method of examination, so that it will give early an exact picture of the circulatory modifications of a diseased viscus. But it will not replace the functional examination of the urine, which, with all its causes of error, with all its possible variations, and, above all, with its strict requirements as to precision, technic and patience, will remain the classic means of diagnosis in urinary tuberculosis.

Single Congenital Ectopic Hydronephrotic Kidney: Two Cases.—Marsella says, with regard to the treatment of such a kidney, that the mere fact that the kidney has an abnormal location is not in itself a justification for surgical intervention. If the kidney is functioning normally in its abnormal position, it should not be disturbed. However, cases have been reported in which a pelvic kidney was a hindrance to pregnancy and was the cause of repeated abortions. In such cases, it is advisable to try to place the kidney in a higher position—in the vicinity of the iliac crest, if possible—but it is usually firmly fixed and does not lend itself to removal owing to the shortness of the vessels. If the kidney is a hindrance to the completion of the birth act, it is an indication for cesarean section.

Significance of Aberrant Renal Vessels for Pathogenesis of Uropyonephrosis.—Lozzi brings out that in all his cases the anomalous vessel must be regarded as the primary cause in the genesis of the hydronephrosis. It is established, however, that there was also a slight degree of exaggerated renal mobility. Treatment should be applied as early as possible, and depends on the anatomofunctional state of the kidney. In incipient cases it will suffice to resect the vessel, eliminate the adhesions if any, and fasten the kidney in a favorable position. Fixation alone does not suffice, as has been shown in numerous cases of other authors, and as was shown in two of Lozzi's cases. In cases of advanced uronephrosis or uropyonephrosis, it is necessary to resort to nephrectomy, which was done in eight of the author's cases. The results secured were good in nearly every instance. The remote results in the cases in which it was possible to get exact information have been more than satisfactory, the clinical recovery having been maintained.

Riforma Medica, Naples

46: 1305-1344 (Aug. 18) 1930

Paranephric Abscess. D. Giordano.—p. 1307.
Hypertonic Solutions of Dextrose in Treatment of Acute Peritonitis. R. Lombardi.—p. 1310.
*Gastric Leukodiapedesis. U. Santomauro.—p. 1313.

Gastric Leukodiapedesis.—The phenomenon of leukodiapedesis has been generally observed in many different mucosas and variously interpreted. Santomauro conducted a series of experiments on dogs by means of microscopic examination to determine the nature of gastric leukodiapedesis as a phase of the general phenomenon of leukodiapedesis. From these experiments he draws the following conclusions: In different stages in the digestion of meat the number of leukocytes passing through the mucosa is always less than during a period of fasting. Experimental conditions that logically cause an irritation in the mucosa cause transmigration of a still greater number of leukocytes than is observed during either digestion or fasting. The phenomenon of gastric leukodiapedesis, therefore, seems to the author to be linked not so much with the specific digestive function of the mucosa as with more general functions of defense or resistance. These conclusions are in direct contrast with those presented by Marchal in 1925, who claimed that gastric leukodiapedesis was directly connected with the digestive function.

46: 1345-1380 (Aug. 25) 1930

*Antagonism Between Epinephrine and Ergotamine, and Respiratory Exchange. R. Capo.—p. 1347.
Biotypologic Ceco-Appendicular Semeiography. W. Berardinelli.—p. 1353.
*Echinococcus Cysts of Thyroid. G. Sabatini.—p. 1357.
How Can Epithelium of Renal Pelvis Be Recognized in Urinary Sediment? E. U. Fittipaldi.—p. 1360.

Antagonism Between Epinephrine and Ergotamine, and the Respiratory Quotient.—Capo experimented to discover whether ergotamine will counteract the increase of energy exchange caused almost constantly by epinephrine, whether administered fasting or after the ingestion of food (dynamic-specific action). From his researches, he concludes that ergotamine does not modify the greater consumption of oxygen induced by epinephrine but that it does cause, when administered fasting, a notable lowering of the elimination of carbon dioxide and a reduction of the respiratory quotient. His study of the gas exchange demonstrated the antagonistic action that these two substances exert on carbohydrate exchange. Epinephrine causes a mobilization of hepatic glycogen and thus increases almost constantly the elimination of carbon dioxide and raises the respiratory quotient. Ergotamine, on the other hand, inhibits the hyperglycemia that is induced by the epinephrine without modifying the increased intra-organic combustion caused by epinephrine. In other words, under the action of ergotamine, epinephrine, though glycogenolysis is checked, stimulates the cells to a greater combustion, and these cells, not having sufficient carbohydrates at their disposal, burn other reserve substances, namely, the fats, thereby lowering the respiratory quotient.

Echinococcus Cysts of Thyroid.—Sabatini describes a case of echinococcus cysts in a man, aged 21, who came with a diagnosis of cystic goiter. The intervention revealed about thirty hydatid cysts, buried in pus, whose presence explained the pain and the rapid growth of the tumor. Thick and tenacious adhesions, provoked by the suppuration of the cysts, necessitated marsupialization. The patient recovered completely.

Deutsche medizinische Wochenschrift, Berlin

56: 1599-1640 (Sept. 19) 1930

Tuberculosis Vaccination with B C G Vaccine. F. Neufeld.—p. 1599.
Results of Endopleural Cauterization in Artificial Pneumothorax. Unverricht.—p. 1601.
*Mechanism of Liver Diet in Pernicious Anemia. R. Duesberg.—p. 1604.
*Influence of Hormonal Preparation *from Anterior Lobe of Hypophysis* on Various Forms of Hypogenitalism in Men. B. Schapiro.—p 1605.
Pharmacologic Evaluation of Purgatives That Increase Bulk of Intestinal Contents. F. Berg.—p. 1607.
Fatal Hemorrhage from Ruptured Ovarian Sarcoma *in Primigravida* During Ninth Month of Pregnancy. H. Goecke.—p. 1610.

Mechanism of Liver Diet in Pernicious Anemia.—Duesberg states that during pernicious anemia the blood does not contain methemoglobin. However, when liver therapy is instituted methemoglobin appears in the blood and, following this change in the decomposition of the blood pigment, regenerative processes set in. Therefore it was assumed that the active substance in the liver is a producer of methemoglobin. This substance causes a disintegration of the immature erythrocytes by changing hemoglobin into methemoglobin. The methemoglobin, or substances that are formed simultaneously with it, stimulate the bone marrow to such an extent that it changes its action and again produces normal erythrocytes that have a greater resistance. As experiments *on healthy persons* indicate, these erythrocytes likewise disintegrate quickly; however, if sufficient liver is given, *formation and disintegration* are in equilibrium. Observations on patients and the results of experiments *on animals* could be substantiated in experiments in vitro. In all liver preparations examined there existed a *substance that* formed methemoglobin in vitro. The greater the purity and the concentration of the liver preparation, the more rapid was the change of hemoglobin into methemoglobin. The preparations of desiccated stomach, which recently have been used with good effect in cases of pernicious anemia, contain the same active substance as liver. Meat has the same effect on the blood status in pernicious anemia if it is first treated with the gastric juice of healthy persons. It has also been found that the hematologic symptoms in patients with pernicious anemia could be improved when normal gastric juice was introduced. Tests revealed that the substance is not present in pernicious anemia but is present in normal persons.

Influence of Hormone from Anterior Lobe of Hypophysis *on* Hypogenitalism.—Schapiro describes the effects that he obtained with a hormonal preparation of the anterior lobe of the hypophysis. *The preparation contained* 100 rat units per ampule. It was employed on twenty-six male patients with *hypogenitalism*. *The author* classifies the patients into four groups. To the first group belong the eunuchoids of the slender type. There were six men *ranging in age from* 19 to 29. To the second group belong patients with genital hypoplasia, adipositas and decreased specific dynamic action. There were fifteen children ranging in age from 9 to 18 and one man aged 27. To the third group belong patients *with* infantilism in the sense of a generalized arrest in the development; in this group there were two children aged 14 and 18. To the fourth group belong those with cryptorchidism; in this group there were two children aged 12 and 16, respectively. Cryptorchidism was also observed in eleven cases of the first three groups. In describing the growth effects of the treatment, the author differentiates between three degrees of maturity. As the first degree of maturity he considers beginning growth of the testes and penis, increase in the pubic hair and in the axillary hair, and in cryptorchids a partial descent of the testes. As the second degree of maturity he considers complete descensus, enlargement of the testes and penis but not yet to normal size, and there is not yet a production of semen. Third degree maturity is complete sexual maturity and the presence of living spermatozoa in the ejaculate. A maturity of the first degree developed in all twenty-six cases; in fourteen instances a maturity of the second degree was noted and in nine cases a complete maturity resulted. The *best results* were obtained in those persons who were near the age of puberty. The hypophyseal extract also influences the gas metabolism. The specific dynamic action is increased and in most cases also the basal metabolism. It is probable that the typical slender eunuchoidism is not always primarily of a genital origin but is often due to hypophyseal disorders.

Münchener medizinische Wochenschrift, Munich

77: 1567-1614 (Sept. 12) 1930

*Newer Methods for Determination of Paternity. W. Mau.—p. 1567.
Occurrence of Types Newport and Oranienburg (Paratyphoid C Group). *W. Rimpau* and K. Steinert.—p. 1570.
Treatment of Chronic Suppurative Processes of Bones and Soft Parts of *Extremities by Means of Local Hyperacidity.* H. Watermann and A. Kemper.—p. 1572.
Sulphur as Homeopathic Remedy. A. Bier.—p. 1575.
Sanitary Regulations for Manufacturing of Ice Cream. Hoch.—p. 1578
Possibility of Detoxicating Intestinal Contents by Means of Salt from *Vange Spring in England.* Hinz and Pinner.—p. 1579.
Treatment of Fracture of Head of Tibia. R. Syller.—p. 1586.
Increasing Therapeutic Influence of Lactic Acid Treatment of Nonspecific Leukorrhea *by Means of* Carbon Dioxide. H. Treber.—p. 1591
Alkali Achylia and Other Disadvantages of Alkali Therapy of Stomach. K. Westphal and W. Kuckuck.—p. 1592.

Newer Methods for Determination of Paternity.—Mau points out that in recent years new methods have been devised for the determination of paternity. In the first part of the article he discusses dactyloscopy, which has been used widely in criminology. It is known that the finger prints of an individual are never identical in all details with the finger prints *of another person*. However, it has been noted that between the finger print patterns of parents and children there is a certain *resemblance*. The author discusses the characteristics of the four main types of finger prints and shows their significance in the determination of paternity. He comes to the conclusion that dactyloscopy is as yet not entirely satisfactory for the determination of paternity. In the second part of the article, several blood tests are evaluated. By means of the test based on the heredity of the blood groups it is not always possible to detect the father of a child; however, if a man has a blood group that has no relation to that of the child, he cannot be the father. The author further describes Zangemeister's method. In this test a decrease in the light permeability can be detected with the step photometer, when the serum of the child is mixed with that of the father. However, when the serum of another man is added to that of the child the decrease does not become manifest. According to Zangemeister the reaction is due to the fact that during pregnancy, as a result of the presence of the paternal sperm protein, antibodies are formed in the blood of the mother and of the child. The reduced light permeability that results when the serums of father and child are mixed is due to the presence of these antibodies. Regarding the practical value of Zangemeister's serologic method, the author states that although Zangemeister himself has always obtained positive reactions, he and several other investigators have found the test not entirely reliable. Further tests will be necessary to determine whether Zangemeister's reaction will be a reliable method for the determination of paternity.

77: 1615-1656 (Sept. 19) 1930

Liver Symptoms in *Poisoning Caused by Edible Turban-Top (Helvella* Esculenta). K. Landé.—p. 1615.
*Symptomatic Fulminant Purpura in Meningococcus Sepsis. F. Seeber. —p. 1617.
*Clinical Aspects and Diagnosis of Hypophyseal Cachexia. K. Herman. —p. 1620.
Sulphur as Isopathic Remedy. A. Bier.—p. 1621.
Treatment of Pernicious Anemia with Powder of Desiccated Stomach. K. Gutzeit.—p. 1625.
Possible Causes of Failure of Chemotherapy. K. Ziegler and Dörle.—p. 1626.
Rest in Bed and Care in Diseases of Childhood. P. Karger.—p. 1627.
Disorders in Vertebral Column After Amputation of Thigh. E. Schrader. —p. 1629.

Symptomatic Fulminant Purpura in Meningococcus Sepsis.—Seeber describes the case of a girl, aged 15, in whom *purpura* was only a symptom of a generalized disease. A severe meningococcal infection was the cause, and it may be assumed that a congenital hypersensitivity of the patient's skin increased the tendency to bleeding. The case ended fatally within twenty-four hours. Microscopic examination revealed the severity of the infection. Pathogenic micro-organisms were found in nearly all the organs. The *term symptomatic* fulminant purpura applies to infections with a foudroyant course and which are accompanied by symptomatic, hemorrhagic diathesis.

Clinical Aspects and Diagnosis of Hypophyseal Cachexia.—Herman reports the case of a woman, aged 48, who was anemic and cachectic. She complained of lack of appetite and of vomiting. On the basis of these symptoms, cancer of the stomach was assumed; however, the roentgen examination did not verify the diagnosis. The Wassermann reaction was negative, the blood picture did not indicate pernicious anemia, and there were no signs of parasitic infestation. Then lymphogranulomatosis of the retroperitoneal lymph nodes was thought of and also hypophyseal cachexia. In consideration of the possibility of these two conditions, the woman was again thoroughly examined. Decayed teeth and a high degree of psilosis were discovered. There was no axillary hair, and the pubic hair was scanty. The sella turcica was normal. The author points out that gastric disorders, cachexia, anemia, decaying teeth and deficient hair growth are found in hypophyseal cachexia and on the basis of these symptoms he diagnosed the case. He instituted a substitution therapy by giving a hypophyseal preparation and also administered hydrochloric acid. As a result of the treatment the gastric symptoms disappeared and the woman's general condition improved considerably. In the conclusion it is pointed out that whenever gastric, hematologic and endocrine symptoms concur, hypophyseal cachexia should be thought of.

Strahlentherapie, Berlin

37: 595-813 (Sept. 2) 1930

*Roentgen Irritation-Therapy of Genital Diseases in Female. L. Seitz. —p. 595.
Roentgen Therapy of Tuberculosis of Adnexa. H. Eymer.—p. 603.
Roentgen Demonstration of Hypertorsion of Cervical Vertebral Column in Child. E. Kehrer.—p. 609.
Diagnosis and Treatment of Intermittent Hydrosalpinx: Case. O. Polano. —p. 619.
Ten Years' Experience with Gynecologic Roentgen Therapy in University of Budapest. F. Gál.—p. 623.
Elimination of Nitrogen in Urine After Roentgen or Radium Irradiation. G. K. F. Schultze.—p. 642.
Comparative Researches on Blood Injury from Roentgen Rays with Old Method of Irradiation or with Metalix Tubes. W. Fürst.—p. 659.
*Roentgen Therapy in Case of Myeloid Leukemia. S. Hammerschlag and H. Knospe.—p. 693.
Saturation Method of Pfahler and Kingery in Roentgen Therapy of Cancer. H. Holfelder.—p. 696.
Theoretical and Practical Bases of Prolonged and Mild Irradiation Method. G. Schwarz.—p. 709.
Alimentation of Cancer Patients. W. Caspari.—p. 719.
Roentgen Therapy of Sarcomatous Exudative Pleurisy. I. Heeren.—p. 735.
Accumulation of Active Bismuth in Malignant Tumors. H. Kahn.—p. 751.
Adjuvant Measures in Roentgen Therapy of Cancer. H. Hirsch.—p. 767.
Changes in Skin Tolerance Under Various Ray Doses. A. Reisner.—p. 779.
Time Factor in Reaction of Protein to Irradiation. W. Gentner and K. Schwerin.—p. 788.
Present Methods and Results of Divided Doses of Rays in Treatment of Cancer. L. Freund.—p. 795.

Roentgen Irritation-Therapy of Subacute or Chronic Genital Diseases in Female.—Seitz's experience includes 380 cases in which irritation doses of roentgen rays were applied for treatment of an inflammation of the genitalia. Fourteen of the women were affected with parametritis; the remainder with adnexitis or with pelviperitonitis. The irradiation (180 kv.) was applied to an abdominal field 20 by 24 cm. The rays were filtered through 1 mm. of copper and 1 mm. of aluminum. From 15 to 20 per cent of unit skin doses were applied to the skin, and from 4 to 6 per cent of unit skin doses penetrated into the pelvis. The dose of roentgen rays reaching the ovaries did not exceed from one sixth to one eighth of the castration dose and therefore was considered as harmless. In most of the cases the irradiation was used once; in a few cases it was repeated one or two weeks later. Exceptionally a third irradiation was required. The roentgen therapy was combined with the usual conservative measures as, for instance, hot air, hot irrigations or diathermy. In 77.9 per cent of the patients with adnexitis or pelviperitonitis, a considerable improvement of the subjective and of the objective signs was noted; in 11.7 per cent, the subjective signs alone were favorably influenced. In the remainder (10.4 per cent) the treatment was without effect. The results of the treatment proved to be the same whether the adnexitis was of gonorrheal or of septic origin, as after abortion or puerperal fever. The improvement was always accompanied by reduction of the leukocytosis and by retardation of the accelerated sedimentation of the erythrocytes. Both reactions were most pronounced in cases of gonorrheal adnexitis. In all cases of acute parametritis the roentgen therapy promoted the resorption process or accelerated the formation of an abscess. The author stresses that in cases of acute gonorrheal adnexitis the treatment should be either avoided or used with extreme caution.

Roentgen Therapy in Case of Myeloid Leukemia.—Hammerschlag and Knospe report the case of a woman, aged 35, who was admitted to the hospital with a presumptive diagnosis of an ovarian tumor. On examination, the genitalia appeared normal; the abdominal tumor proved to be an extremely enlarged spleen descending into the small pelvis. Blood examination pointed to a typical myeloid leukemia; the number of leukocytes was 255,000, with a predominance of myeloblasts. On account of the poor general condition, extirpation of the spleen was excluded and roentgen therapy was tried. One third of a unit skin dose was applied to a field 10 by 15 cm. About 190 kv. and 2 milliamperes were used for the irradiation, with a zinc filter of 0.5 mm. and an aluminum filter of 1.0 mm.; the focus-skin distance was 40 cm. The irradiation was well tolerated by the patient. On the fourth day after the irradiation, the fever disappeared; the general condition improved. The number of leukocytes became reduced to 88,000; the blood picture approached normal. On the eighth day, the size of the spleen decreased; its lower border could be perceived beneath the umbilicus. After a sojourn of two weeks in the hospital, the patient was discharged. She was readmitted to the hospital a year later. On blood examination, 120,400 leukocytes and a predominant number of myeloblasts were found. The spleen reached the upper edge of the pubic symphysis. The irradiation was renewed (the same dose of rays as the first time); within fourteen days the number of myeloblasts decreased and that of the leukocytes was reduced to 70,000. The size of the spleen became smaller by three fingerbreadths. Up to the present, the irradiation has been twice repeated. During the two years of treatment, the patient was able to do housekeeping. It is expected that, by continuing the treatment, the improvement of the patient may persist.

Wiener klinische Wochenschrift, Vienna

43: 1133-1160 (Sept. 11) 1930

*Practical Value of Spirometry in Pulmonary Tuberculosis. H. Kutschera-Aichbergen.—p. 1133.
Comparative Serologic Investigations with Simplified Method of Müller's Conglobation Reaction. A. Bergel.—p. 1137.
*Etiology of Articular Rheumatism. E. Risak.—p. 1141.
Mechanism of Paroxysmal Cardiac Dyspnea and of Bronchial Asthma. H. Januschke.—p. 1146.
Etiology of Narcolepsy. K. Tsiminakis.—p. 1147.
Relation Between Tuberculous Pleurisy and Psoriasis. H. Mayrhofer. —p. 1149.
Surgery of Liver and of Bile Passages. J. Schnitzler.—p. 1149.
Therapy of Pyelitis and Pyelonephritis. T. Hryntschak.—p. 1150.

Practical Value of Spirometry in Pulmonary Tuberculosis.—Kutschera-Aichbergen shows that spirometry, or the determination of the vital capacity, is a valuable aid in determining the functional capacity of the lungs. First he defines vital capacity and describes the technic of spirometry. Then he explains the formula according to which the normal vital capacity may be estimated. Whenever spirometry reveals a marked reduction of the normal vital capacity, a pathologic condition exists. The author further describes the vital capacity in pulmonary tuberculosis. Tuberculous changes in the lungs, especially exudative processes, reduce the vital capacity. Because the technic of spirometry, as well as the required apparatus, is so simple, the general practitioner can easily make use of it. This method facilitates the diagnosis of the exudative early forms of tuberculosis, the early infiltrate and its sequelae. A comparison of spirometric tests makes it possible to determine the further dissemination, or the progress in the cure of the tuberculous process, without the aid of a roentgen apparatus. However, it is interesting and instructive to compare the results of spirometric tests with the roentgenograms. In cases of phrenic avulsion, pneumothorax and other forms of collapse therapy the determination of the vital capacity indicates their encroachment on the functioning of the lungs.

Etiology of Articular Rheumatism.—Risak points out that recently several authors have reported observations that again bring into prominence the question of the bacterial pathogenesis of articular rheumatism. Reitter and Löwenstein assume a tuberculous origin. The author describes the results of examinations of the exudates from the joints of patients with rheumatic polyarthritis. The bacteriologic tests always gave negative results, the staining tests as well as the cultures. Several animal experiments likewise gave negative results. The author further reports the clinical history of a patient in whom, besides old and new tuberculous processes in the lungs, there also existed a tuberculous lymphadenitis. The anamnesis and the clinical observations indicated that a rheumatic polyarthritis existed simultaneously with, but independent of, the tuberculosis. Two other cases are reported in which a polyarthritis developed in connection with a tonsillitis. However, the author sees no definite proof for the assumption that bacteria caused the exudates in the joints. The clinical aspect in these cases spoke against a bacteriologic pathogenesis. In the conclusion the following statement is made: The fact that, in rare cases of polyarthritis, bacteria can be found in the exudates of the joints, does not justify the assumption of a bacteriologic pathogenesis for all cases.

43: 1161-1188 (Sept. 18) 1930

Actinotherapy of Malignant Tumors in Sweden. G. Forssell.—p. 1161. C'td.

Cure of Filariasis with Gold Therapy and Malariotherapy. E. Neuber.—p. 1165.

*Advisability of Extirpation of Spleen in Pernicious Anemia. G. Spengler.—p. 1167.

Treatment of Menopausal Disorders. J. Stur.—p. 1168.

Experiences with Ponndorf's Cutaneous Vaccination (Vaccine A and B) in Tuberculosis. M. Greil.—p. 1172.

Tonsil Problem: Local Centrifugal Defense Reaction Against Infection. J. Treer.—p. 1173.

Plastic Surgery for Reducing Size of Ears. J. Eisenklam.—p. 1176.

Value of Percussion Auscultation. G. von Berencsy.—p. 1176.

Modern Methods of Anesthesia. G. Lotheissen.—p. 1178.

Advisability of Extirpation of Spleen in Pernicious Anemia.—Spengler gives the case reports of two patients with pernicious anemia in whom the spleen had been extirpated. In both instances a remission lasting eleven and ten years, respectively, was effected. Observations on the splenectomized patients prove that the liver and the spleen have an antagonistic action in the regulation of the erythrocyte content of the blood. Because of the good results that recently have been obtained with liver diet and with desiccated hog stomach, it would not be advisable to abandon these treatments in favor of splenectomy with its comparatively high operative mortality (20 to 30 per cent). However, in cases in which liver diet and stomach powder do not bring the desired results, splenectomy may be resorted to. The two cases reported prove that extirpation of the spleen is of therapeutic influence not only in cases of familial hemolytic icterus but also in pernicious anemia.

Zeitschrift für Urologie, Leipzig

24: *721-800, 1930*

Nephrosis, Amyloidosis of Kidney and Amyloid Contracted Kidney: Diagnosis. R. Chwalla.—p. 721.

*Exclusion of Kidney by Roentgen Irradiation. P. Halbfas-Ney.—p. 734.

*Chorio-Epithelioma of Testis. I. B. Scheftel.—p. 739.

Wandering Ligature in Urinary Bladder: Three Cases. G. Petrén.—p. 748.

Ureterocele: Five Cases. G. Petrén.—p. 758.

Prostatitis: Diagnosis. J. F. Zhorno.—p. 771.

Exclusion of Kidney by Roentgen Irradiation.—Halbfas-Ney reports a case of left-sided pyonephrosis in a woman, aged 59, who had previously had numerous attacks of pyelitis. Because of the poor general condition of the patient (myocarditis, high blood pressure and chronic bronchitis), nephrectomy was deemed too dangerous. Therefore a nephrostomy was performed under local anesthesia and a large amount of pus was evacuated. Two rubber drains were then introduced. The operation was followed immediately by a return of the temperature to normal. Six days later the patient felt better and the drains were shortened. Two days later they were removed and a gauze strip was introduced. Through the fistula there passed a large amount of urine. To stop the discharge of urine, two roentgen irradiations were given. In the first irradiation, 100 per cent of a unit skin dose was applied to the lumbar region over an area of 8 by 8 cm. and through a zinc filter 0.5 mm. thick and an aluminum filter 1 mm. thick at a focal distance from the skin of 23 cm. Two days later, 90 per cent of a unit skin dose was applied to a ventral field in the region of the kidney with the same filters and the same focal distance. After the irradiations the secretion of urine increased markedly for eight days and then began to diminish; after a few days more it stopped completely. This form of treatment of pyonephrosis is to be recommended particularly in debilitated patients who could not survive a nephrectomy. The preliminary nephrostomy permits unobstructed drainage of the pyonephrosis and by eliminating the flow of toxins to the other kidney facilitates its return to normal. The dense adhesions produced about the pyonephrotic kidney by the drainage and irrigation of the pus sac render its removal difficult and dangerous. Under such conditions the treatment of choice is exclusion of the kidney by roentgen irradiation.

Chorio-Epithelioma of Testis.—Scheftel reports a case of chorio-epithelioma of the testis with a metastatic growth the size of a child's head originating in the mesenteric lymph nodes and adherent to the small and large intestines. In the tissue of both lungs there were numerous grayish red tumor nodules; the entire lower lobe of the right lung had been replaced by tumor tissue. Metastatic nodules in the neighboring lymph nodes had invaded the vena cava, the portal vein and the right ureter. Emphasis is laid on the rapidity with which chorio-epitheliomas destroy the blood vessels and give rise to metastases and on the resulting importance of an earliest possible diagnosis and surgical treatment. Roentgen rays and radium should be used only as adjuvant treatment to prevent lymph node metastases.

Acta Psychiatrica et Neurologica, Copenhagen

5: *323-438, 1930*

*Blood Pressure During Epileptic Seizure. V. Hendriksen.—p. 323.

Cerebellar Tumor: Case. F. Leiri.—p. 339.

Cerebrospinal Fluid: Sugar Content. C. J. Munch-Petersen.—p. 347.

Simulation in Mental Diseases. A. Petrén.—p. 381.

*Intracranial Pressure: Determination by Bailliart's Method. K. Winther.—p. 403.

Insane Men as House Builders. J. Lundahl.—p. 429.

Blood Pressure During Epileptic Seizure.—Hendriksen studied the blood pressure of thirteen persons during sixteen epileptic seizures. In two instances the patient had status epilepticus, in two the seizure appeared spontaneously and in twelve it was induced by hyperventilation. It was noted that the epileptic seizure is always accompanied by a rise in the systolic blood pressure, whereas the diastolic blood pressure and the pulse are affected but little. In rare instances the rise in the blood pressure may be demonstrated some minutes before the attack, but most often it comes on immediately before the attack; it sets in suddenly and reaches its maximum in the beginning of the attack. The end of the attack is accompanied by an equally sudden fall in the blood pressure. When the seizure is over the blood pressure has usually reached the same value as before the attack and it remains at this level.

Intracranial Pressure: Determination by Bailliart's Method of Ophthalmodynamometry.—Winther describes Bailliart's ophthalmodynamometer and states that it is used thus: The instrument is placed on the eyeball and the intra-ocular pressure is increased while at the same time the central artery of the retina, which normally does not pulsate, is viewed through the ophthalmoscope. By a progressive augmentation of the pressure one sees first that the artery begins to pulsate and then, when the pressure is increased still more, the pulsations disappear. The appearance and disappearance of the pulsations represent, respectively, the diastolic and systolic pressures of the central artery of the retina and these constitute an index of the intracranial pressure.

CORRECTIONS

Pyelography.—In The Journal, Sept. 20, p. 904, the title of a paper published in *Hospitalstidende,* June 5, "Pyelography After Intravenous Injection of Merbaphen" was an error. It should read, "Intravenous Urography by Means of Iopax (Sodium 2-Oxo-5-Iodo-Pyridine-N-Acetate)."

Articles Published in Laryngoscope.—In The Journal, October 25, p. 1294, under the head *Kansas Medical Society Journal,* only the first five titles should be credited to that journal. The last four titles are those of papers published in the *Laryngoscope,* St. Louis **40:**627-706 (Sept.) 1930.

Control of Bleeding in Tonsillectomy, Operative and Postoperative. E. M. Freund, Albany, N. Y.—p. 675.

Stammering. R. M. Lukens and M. Trumper, Philadelphia.—p. 680.

Loaded Revolver Cartridge in Bronchus: Case. M. P. Stiles, Birmingham, Ala.—p. 683.

Peptic Ulcer of Esophagus. F. S. Mainzer, Clearfield, Pa.—p. 685.

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PREGNANCY AND TUBERCULOSIS

A STUDY OF THE OBSTETRIC HISTORIES OF FOUR HUNDRED AND EIGHTY-FOUR PATIENTS *

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Since tuberculosis appears not to be diminishing as rapidly among girls and young women as it is in other age and sex groups, the combination of tuberculosis and pregnancy will continue to be a critical phase in preventive medicine. It was to remedy the lack of case material in this field and to assemble whatever facts could be obtained from a selected group of tuberculous women in relation to pregnancy that the present study was undertaken.

Each year on the anniversary of the patient's "graduation" from Trudeau Sanatorium, he reports on his present status. In 1925 and 1926, through the courtesy of the medical board, and in cooperation with the superintendent, Dr. Fred H. Heise, additional forms were sent out to 1,000 married women graduates, inquiring as to their experience with child-bearing. Nearly half responded, 484 in enough detail to make possible certain comparisons and observations, which are here presented.

The replies were intelligent and painstaking, as was to be expected from a group made up of well educated women, most of whom were high school, and a large proportion college, graduates.

GENERAL OBSERVATIONS

In the absence of mortality figures, the less dramatic measures of effort, waste and achievement under handicap must be used.

The outstanding fact, and the important one for the community, is that these women are not contributing in anything like their proportions to the coming generations. Certainly they cannot be described as reckless breeders.

One third of the 484, or twice the highest figure set for involuntarily sterile marriages, never became pregnant. (Estimates for involuntarily sterile marriages range from one in six to one in ten.) The other two thirds proceeded with caution. They became pregnant only about half as frequently as the average, if the women attending birth control clinics can be taken as the average. Finally, they brought to living birth a far smaller proportion of the children conceived than appears usual. Just over half of the group, 287, bore even one living child, and these bore a scant two apiece.

Those who bore more than one or two living children had done so before contracting tuberculosis. Losses before and immediately after birth were disproportionately high, averaging thirty-five to every hundred living births, as compared with nineteen to a hundred among the clients of birth control clinics. But losses after birth were extremely infrequent. Most of the babies were breast fed and kept on a careful regimen, and nearly all were given medical examination, so that only a third of the expected number died in infancy, and few indeed thereafter. Of the 579 children born alive, 556 were still alive when their mothers reported, fifteen years later.

Reports on the present condition of the children were monotonous: "healthy," "robust," "normal" were used to describe nine out of ten. The tenth child was described as "thin," "undernourished," "subject to colds," with an occasional "nervous"; but few serious handicaps of any sort were reported, and only nine were tuberculous or even suspected of being so. In only fourteen children, including those who died, was tuberculosis found, or even suspected. This is a small number among 287 tuberculous mothers—only one in twenty.

In view of the widespread connection in the public mind between tuberculosis and pregnancy, it is interesting and significant of the intellectual honesty of these women that the majority did not claim any relationship between the two conditions. Only one third of those pregnant at any time found that the disease began or recurred with a pregnancy or after a delivery or an abortion. But, of all women pregnant before "cure," 44 per cent had found their tuberculosis adversely affected.

Of course, the large number who undoubtedly refrained from pregnancy deliberately must have believed it unsafe. Moreover, we know nothing about the women dead before reporting, nor how many refrained from marriage because of their tuberculosis.

The majority nursed their children, and nursed them for long periods.

Labors were reported to be difficult and instrumental in a large number of cases.

Of accidents in childbirth, the most notable were the postpartum hemorrhages that occurred in 44 instances, or 13 per cent—more than six times the usual frequency in the general population.

Menstrual histories showed half with disturbances, mostly dysmenorrhea.

No bad effects were noted after any of the eighty artificial abortions reported, though a few onsets and recurrences occurred after some of the 101 spontaneous abortions.

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* From the Trudeau Sanatorium, Saranac Lake, N. Y., in cooperation with the National Committee on Maternal Health, 2 East One Hundred and Third Street, New York.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

* Owing to lack of space, this article has been abbreviated in The Journal by omission of the tables. The complete article appears in the Transactions of the Section and in the authors' reprints.

From another point of view, however, the study is satisfactory because the results seem reasonable and on the whole a justification of reason, good sense, and conscientious procreation. Thus the women were either sterile—and we must assume largely voluntarily so—or they had few pregnancies, and, after Trudeau at least, did not bring these to delivery unless the situation seemed to warrant it. There is nothing to indicate that this group of women were using tuberculosis as an excuse for not bearing children. On the contrary, they evidently wanted children very much and were willing to take extra risks to have them, and when they did have them took extremely good care of them, as well as of themselves.

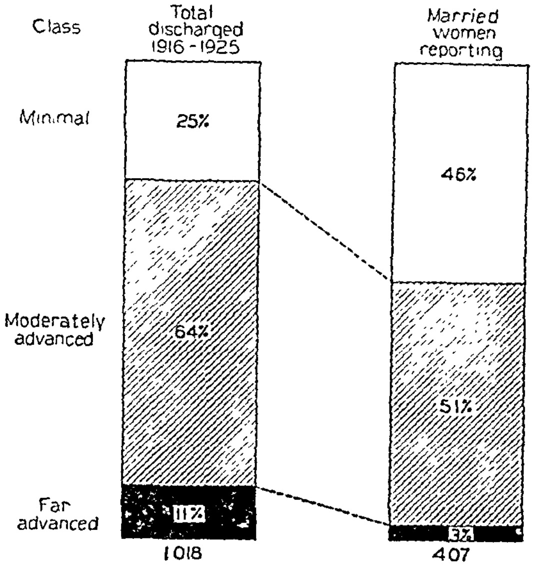

Chart 1.—Comparative classification of tuberculosis among 1,018 Trudeau women patients discharged in ten year period 1916-1925, and 407 discharged from 1896 to 1924 reporting on obstetric histories.

The whole story is a good one for Trudeau and a triumph of teaching how to live so as to conserve strength and health in the face of real handicaps.

COMPARISON WITH WHOLE NUMBER OF PATIENTS

Compared with the rank and file of Trudeau patients, the group studied are somewhat selected, since all answering had at least lived and were well enough to write letters and fill in schedules, and had never been *so seriously afflicted.*

Of 1,018 women discharged between 1915 and 1925, *273* were dead by 1930, or something more than one in four. Of all deaths, 220, or 81 per cent, were from tuberculosis, half having taken place by the end of three years and three fourths by the end of five years.

As half of the women studied had been out of Trudeau for more than *fifteen years*, it is obvious that they must represent the survivors of a considerably larger group, probably more *than a third again* as large. Whereas the whole number discharged between 1916 and 1925 had been out an average of *ten years* by 1930, some of the group studied had been out as long as thirty-five years, one fourth for more than twenty-two years, one half between fifteen and twenty-two years, and only one fourth for less than ten years, these averaging five years.

All had survived not only a condition of tuberculosis but also marriage: two thirds of them one or more pregnancies, and 59 per cent the bearing and rearing of one or more *children.*

Finally, not quite one woman in ten claimed to be worse off than when she left Trudeau.

CLASSIFICATION [1]

The women studied were in a less serious condition than the whole number discharged, with more classed as *minimal* and moderate, and far fewer as far advanced (chart 1).

Chart 1 shows the comparative classifications of the *two groups.*

The death rates for the various classes, 18 per cent of the minimal, *26* per cent of the moderately advanced, and 52 per cent of the far advanced, dead ten years later, indicates the kind of selection going on which resulted *in the final distribution* of our group.

Chart 2 and table 2 show the distribution into six classes *of the 484 women reporting. In the following* discussion the six classes are usually considered separately, and are referred to in ascending order of seriousness from class 1, the nontuberculous, to class 6, the far advanced:

Class 1, *nontuberculous:* The fifty women classed as nontuberculous were all discharged between 1915 and *1921, most of them from 1918 to 1920,* and it is just possible that these were drawn largely from the group of women with epidemic influenza. They had a relatively large number of abortions, both before and after "cure" at Trudeau, *and* their general condition was apparently rather poor, as shown by frequent entries of complications such as bronchitis, *hyperthyroidism or cardiac decompensation.* They have been kept in this study for purposes of comparison and as a *sort of check on the difference between the* reactions to treatment of definitely tuberculous patients and those otherwise affected.

Class 2, doubtful: This apparently meant that seven were probably not tuberculous, as compared with the next group.

Class 3, suspected: This includes the twenty who probably were tuberculous and resembled in their reports the moderately advanced group, while the doubtful ones were *more* like the *minimal.*

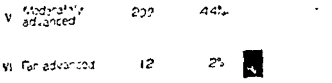

Chart 2.—Classification at Trudeau of 484 married *women graduates* studied.

Class 4, minimal: One hundred and eighty-six, or 39 per cent, exhibited the smallest degree of definite tuberculosis.

Class 5, moderately advanced: Two hundred and nine, or 43 per cent, were in the next most serious condition.

Class 6, far advanced: Only twelve, or 2 per cent, were in the worst condition. All had been married before contracting tuberculosis, and only two reported any pregnancies after being at Trudeau.

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[1] The scheme of classification is that adopted by the National Tuberculosis Association, aside from the omission of three subgrades of each class.

CONDITION ON DISCHARGE

The condition on discharge is shown in table 2 by classes. The great majority were considered tuberculous but nonactive, 303, or 62 per cent, being either "quiescent" or "apparently arrested." The next largest group were still actively tuberculous, 22 per cent, being either "unimproved" or "improved."

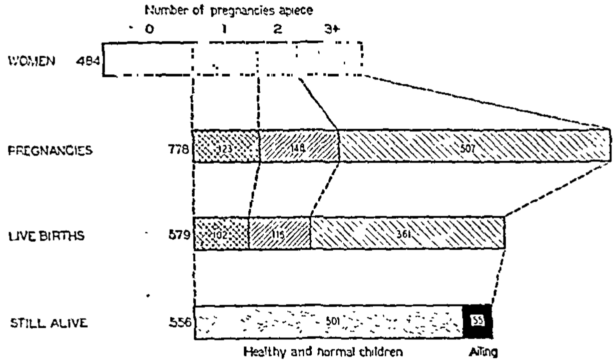

Chart 3.—Pregnancies and outcome: First bar represents whole group of 484 divided according to number of pregnancies reported; second bar shows total pregnancies; third, live births, the difference in length of each section indicating losses; last bar shows total children alive at time of report.

PREGNANCIES AND OUTCOME

The whole picture of pregnancies and outcome is shown in chart 3. The first bar indicates 484 women, divided into four parts according to the incidence of pregnancy. The first part is the 167 women who never were pregnant, while the rest of the bar is the 317 who were. These were made up of 123 who had only one pregnancy: next 74 who had only two, and the last is the 120 women who had three or more, averaging four pregnancies apiece.

The second bar shows the number of pregnancies, 778 in all. Their allotment is indicated by the lines connecting the two bars at the points marking the one, two and higher orders. This bar is made on the same base as the first, so that its length, a little over one and a half times the first, shows that pregnancies for the whole group averaged only 1.6.

As 40 per cent of the pregnant women had one or more losses by abortion, stillbirth or neonatal death, the number of living births is considerably lower, as shown by the third bar.

Among 778 pregnancies, 199 were lost before or at birth, leaving 579 living births and making a total ratio of 36 to every 100 living births. The losses were made up of 181 abortions, of which 80 were operative and 101 spontaneous; 8 stillbirths, nearly all of first pregnancies; and 10 neonatal deaths, nearly all in the first few hours and scattered through various orders. Details are shown in table 4. The losses increased with the number of pregnancies as follows:

Of 123 with one pregnancy, 39 per cent failed of a living birth, a ratio of 21 losses to 100 live births.

Of 74 women with two pregnancies, 23 per cent failed to carry all through, a ratio of 29 to 100 live births.

Of 120 women with three or more pregnancies, 38 per cent failed to carry all through, a ratio of 40 to 100 live births.

CARE OF SURVIVING CHILDREN

The last bar of chart 3 shows 556 children alive at the time of the report and represents a survival rate of 96 per hundred live births.

Of the remaining 556 children, 501 were reported to be "normal, healthy and robust," with only 55, or fewer than one in ten, other than entirely well. In only nine cases was tuberculosis found or suspected.

This good report is obviously due to the fact that the mothers applied the principles of hygiene they had learned from their own experience to their children. A further evidence is the large number who reported health examinations for their children, 60 per cent of all, and three fourths of those who believed their tuberculosis to have been adversely affected by pregnancy.

Another remarkable feature is the large number of women who nursed their babies. Among the 287 who bore living children, 203, or 71 per cent, reported nursing, although most of these live births were after "cure" at Trudeau and in spite of the general teaching against nursing by tuberculous women.

FERTILITY AND GENERAL CLASSIFICATIONS

The definitely tuberculous women had more pregnancies than the other two groups, the per capita number being 2.5 for classes 4 and 5, and 2.9 for class 6, as compared with 2.3 and 2.4 in the nontuberculous and doubtful classes.

The number of pregnancies reported by each class is shown in table 3. It will be seen that the majority of each class had no more than one or two apiece, except in the far advanced class, half of whom had three or more. The total incidence is shown in chart 4 by classes. Here it may be seen that the moderately advanced class had the largest proportion with no pregnancies.

Losses before and at birth increased with the seriousness of the disease, so that they were in a ratio of 29 to 100 living births in the minimal, 40 to 100 in the moderately advanced, and 54 to 100 in the far advanced.

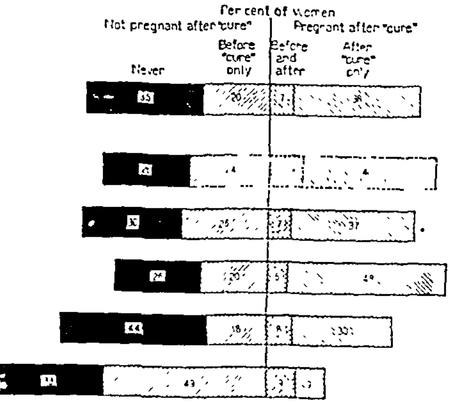

Chart 4.—Incidence of pregnancy before and after "cure" by classes: Vertical line is for "cure" at Trudeau; bars show percentage distribution; all to the left are those not pregnant after leaving sanatorium.

INTERRELATIONS OF TUBERCULOSIS AND PREGNANCY

Of the 484 women, 218 were married before and 266 after they had contracted tuberculosis, or at least before their condition was questioned. The two groups had about the same proportion who were never pregnant. Those marrying before had more pregnancies apiece and not nearly so many prenatal losses.

There are two determining factors in the distribution of pregnancies, survivals and losses: First, there is the effect noted by the women of their pregnancies on their tuberculosis or supposed tuberculosis. Women noting a positive effect numbered 103 and are grouped together as A, and all the rest, numbering 214, who were pregnant are grouped together as B. Group A, as compared with group B, had more pregnancies and more losses and more difficult labors, and did not make out quite so well with their children who lived.

Second, there was a distinct difference in the number of pregnancies, the losses and survivals according to whether these occured before or after "cure" at Trudeau.

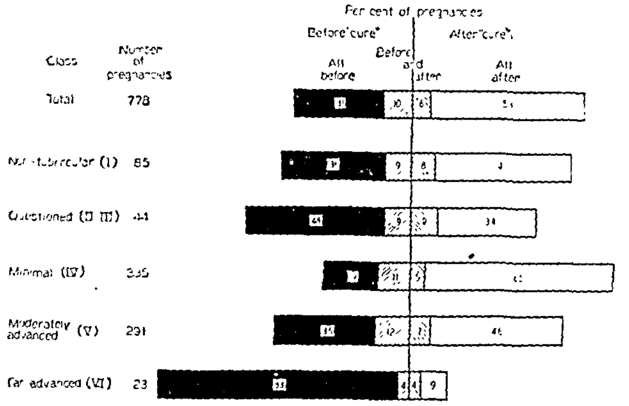

Chart 5.—Pregnancies before and after cure: same as chart 4, except that bars represent total pregnancies instead of women, and black portions represent pregnancies of those women who were *pregnant only before* "cure."

These two factors influence the whole tone of the reports far more than do such considerations as age or classification of disease. They are used, therefore, as the basis for comparison, all the women being divided into A and B groups and thereafter into the period for which they report pregnancies.

GROUP A

In all, 103 women, or about one in three, reported some connection between her tuberculous condition and pregnancy, either by way of onset of the disease during or immediately after pregnancy, abortion or delivery, or definite relapse, or a return or increase of symptoms, or appearance of the disease in one or more of the children.

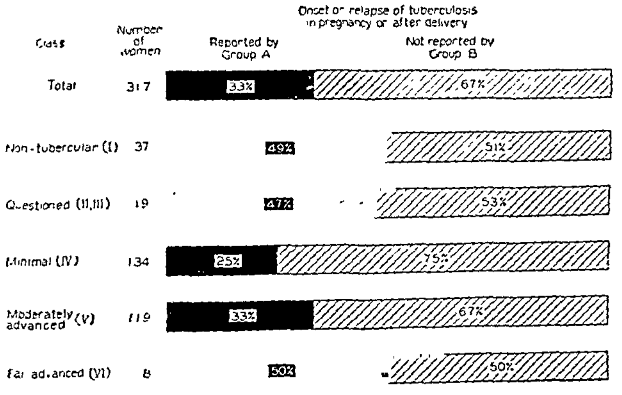

Chart 6.—Tuberculosis and pregnancy: Black sections show proportion in each class reporting adverse effect of pregnancy on their tuberculosis, called group A; all *others cross* hatched.

1. Onset of tuberculosis was claimed by forty women, thirty-eight who reported onset during pregnancy or within a few weeks or months after childbirth. Of these, thirty-five were first deliveries, three second or third, and twelve reported a relapse at subsequent pregnancies; and two who reported onset after spontaneous abortion, of whom one had a relapse later.

2. Relapse of tuberculosis severe enough to require special or prolonged care or even renewed "cure" was reported by thirty-three. Of these, twenty-nine were after childbirth and four after spontaneous abortion.

3. Recurrence of symptoms, such as fever, coughing or sputum, with an occasional hemorrhage, but of temporary character only, requiring no more than the ordinary care and rest at home, was reported by twenty-seven.

4. Finally, three women who noted no other effects reported having tuberculous children or children who were suspected cases in very early life.

The distribution of these women according to classification is shown in table 5 and graphically in figure 6. The proportion reporting a connection rose from a fourth in the minimal to a third in the moderately advanced, and to half in the far advanced class.

INCIDENCE OF PREGNANCY AS RELATED TO CURE

The incidence of pregnancy varied greatly before and after "cure," so that while only 20 per cent of the entire group had any children before coming to Trudeau, they had 41 per cent of all the pregnancies, or twice their quota, while the 80 per cent becoming pregnant after leaving Trudeau had only 59 per cent, or far less than their quota.

The reason for this is shown graphically in charts 4 and 5. Chart 4 gives the distribution of women in each class reporting no pregnancies at all, those who had them only "before" and those having them later. The 100 per cent bars are slid back and forward across a vertical dividing line which represents the "cure" at Trudeau. Of the 484 women shown in the first bar in chart 4, 167, or 35 per cent, were never pregnant, while 99, or 20 per cent, were pregnant only before "cure," thus leaving 218, or 45 per cent, who were *pregnant after* "cure," 33, or 7 per cent, being pregnant both before and after, and 185, or 38 per cent, only after.

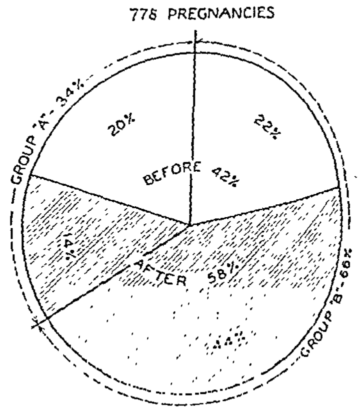

Chart 7.—Distribution of pregnancies reported by *group A and group B* according to occurrence before or after cure: white areas before, hatched after.

Chart 5 shows that 41 per cent of all the 778 pregnancies were before cure, being made up of 31 before only, and 10 per cent of those reported by women who were pregnant both before and after.

The lower bars in each chart show the distribution of pregnancies according to classes.

The relative incidence of pregnancy in groups A and B is shown in chart 7, which is a pie divided into four slices. The unshaded portions represent the 323 pregnancies that occurred before Trudeau. They were contributed in almost equal numbers by groups A and B, 20 per cent and 22 per cent, although the relative sizes of A and B would lead one to expect twice as many from B.

PER CAPITA PREGNANCIES BEFORE AND AFTER "CURE"

While a relatively large number of all pregnancies occurred before the patients came to Trudeau, an even larger proportion of children were brought to living birth.

The women who had pregnancies both before and after had a per capita total of 3.9 and lost one child apiece, keeping 2.9, and thus in spite of their high rate of losses, these had the highest effective fertility. This may be the mathematical basis for the reasoning advanced by those who urge a maximum birth rate, at whatever cost to mother or child, to keep numbers high.

The per capita pregnancies reported by groups A and B are in chart 10. The differences are even more marked, especially in the A group, in which those pregnant both before and after had four pregnancies in all and saved 2.6 in spite of losing 1.4. The B group, however, in spite of their lower number to begin with, saved the most, 3.2 out of 3.7.

The ratio of losses increased in the B group directly according to the number of pregnancies, going from 13 per hundred live births in the first order to 26 in the second and to 40 in all higher orders. This is not true of the A group, however, which lost 43 in the first order, 36 in the second and 41 in the higher orders.

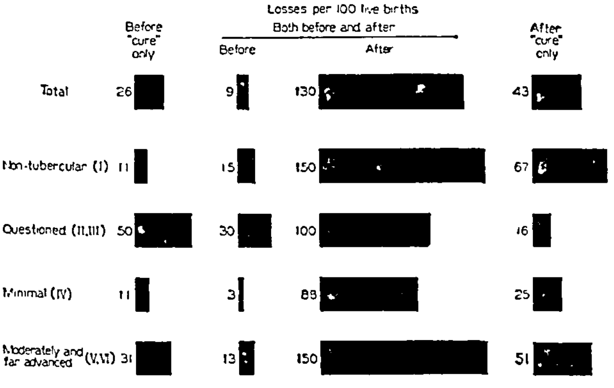

Chart 8.—Rate of loss before and after delivery: Bars show total abortions, stillbirths and neonatal deaths reported by women in each class per hundred live births at each period before and after "cure."

From this it would appear that the B group deliberately limited the number of their pregnancies and even more strictly their deliveries at term, resulting in a better general condition.

Charts 8, 9 and 10 show the rate of losses before and after "cure," first by classes of tuberculosis, then by groups A and B, and then by per capita pregnancies and losses reported at each period by groups A and B.

The losses were not evenly distributed, only 123 women reporting any abortions, stillbirths or neonatal deaths, and 194 carrying all pregnancies to term. Thirty women with 44 pregnancies failed to carry any through, thus leaving 287 who had any living children. Of the 30 who lost all, 22 were pregnant after cure. In group A, 9 of the 13 without any live births were among those pregnant only after "cure."

The rate of loss among those losing at all was extremely high; in group A 106 and group B 90 per hundred live births (table 7).

ABORTIONS

Because nine out of ten of all losses at any period were by abortion, and because interruption of pregnancy is so often advocated in the case of tuberculous women, it is interesting to see the character of these interruptions and how they varied by groups and by time of occurrence. The details are given in table 10. The significant items seem to be as follows: After cure, abortions were nearly three times as frequent as before, and the operative abortions four times as frequent. The group A women reported more spontaneous abortions before than after, these being related as about 6 to 4, thus indicating a relatively low vitality which did not allow carrying through to term. The group B women, on the other hand, reported over three times as many spontaneous abortions after "cure" as before, thus showing that tuberculosis had lowered their general resistance and carrying power even though their tuberculosis was not adversely affected by pregnancy. The operative abortions, however, were four times as frequent after as before in the two groups together but were relatively more frequent afterward among the B group, where they were five to one as compared to four to one in the A group.

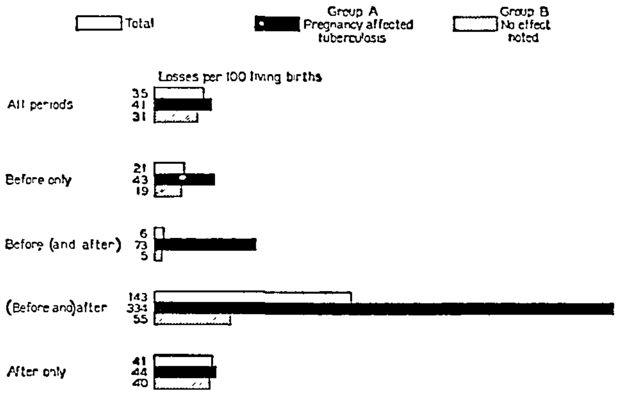

Chart 9.—Rate of loss before and after cure: same as chart 8, but by groups A and B instead of by classes.

No ill effects were reported following operative abortions.

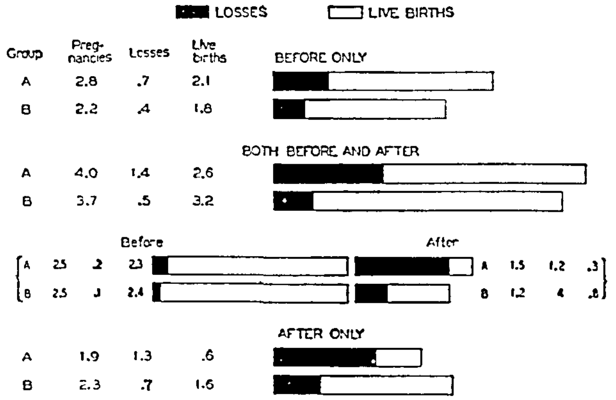

Chart 10.—Per capita pregnancies, losses and live births: Bars represent actual per capita losses and survivals at each period.

RELATIVE FERTILITY

The fertility of these women is apparently low compared with the general population. Little is known of the actual incidence of pregnancies and prenatal losses, only the exceptional abortion being recorded in the vital statistics or in hospital files. However, some figures are being gathered in birth control clinics here and abroad, where special inquiries are made of each applicant, not only as to her total living and dead children, but as to the total pregnancies, the outcome of each being recorded as exactly as possible. A study of the records of 13,005 women in fifteen birth control clinics [2] showed that even allowing for all errors of memory and deliberate suppressions, the rank and file of women have had nearly four pregnancies in ten years of married life and have three living children when they apply for contraceptive information. The ratio of prenatal losses reported is 19 to 100 live births. These Trudeau women have hardly more than half as many pregnancies during the marriages lasting fifteen years, and losses occur with them at about twice the rate.

MENSTRUAL DIFFICULTIES

Among 484 women, 228, or 47 per cent, reported menstrual difficulties of some sort; as pain, excess or scanty flow, or various combination of these. Dysmenorrhea led, 162 reporting it alone, and 22 with menorrhagia in addition. Menorrhagia alone was reported by 13. Scanty flow alone was reported by 15, and with dysmenorrhea by 14. Amenorrhea was reported by only 1 woman, and only 1 reported irregular menstruation. Thus, painful menstruation occurred in 200 instances, excessive flow in 35, and scanty flow in 30.

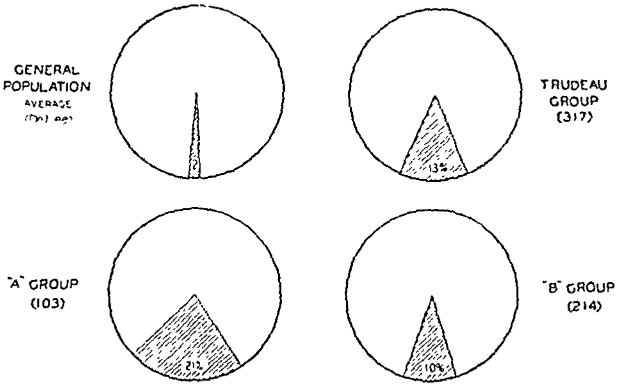

Chart 11.—Postpartum hemorrhage: Comparative distribution in general population and in Trudeau group.

There was some variation according to class. Thus, 41 per cent of the minimal class reported menstrual troubles and 50 per cent among the moderately advanced, while only 17 per cent of the far advanced so reported. Somewhat more of the A group had menstrual disorders.

Accurate figures on the normal incidence of menstrual disorders are not available, but it has been estimated that about one third of all women have real discomfort and one third of these are seriously affected. If, therefore, menstrual disorders are more frequent among the tuberculous, this point suggests one more means of preventive treatment.

CHARACTER AND DURATION OF FIRST LABOR

In all, 263 women reported duration of pain in their first labors, out of a total of 288 with deliveries at term of living children, and 237 as to the character of the labor, whether it was normal or hard and whether or not instruments were used.

Duration was from one hour to five days, with an average of sixteen hours, which is two less than the usual average for primiparas. This was perhaps due to the frequent use of instruments advised for tuberculous, cardiac and nephritic cases. But an unusually large number reported very short labors—a fourth less than six hours, half less than twelve, and three fourths less than twenty. The average of sixteen hours was thus made up by the fifty-one women who reported labors of twenty-four hours and over.

There was some difference in duration according to degree of tuberculosis, the minimal class averaging twenty hours, with one fourth over forty-three; the moderately advanced, sixteen with one fourth about thirty-six hours; and the far advanced fifteen, with the highest only twenty hours. This reveals a desirable tendency on the part of obstetricians to shorten the second stage of labor for disabled women.

Of the whole group reporting on character of labor, 40 per cent considered it "hard" and 60 per cent "easy." Instruments were reported used in 35 per cent of all, but in only 25 per cent of the "easy" and 92 per cent of the "hard" labors.

POSTPARTUM HEMORRHAGE

The most striking feature of these histories was the relatively large number of postpartum hemorrhages. A 2 per cent incidence is considered usual in the rank and file of deliveries, and in high grade maternity services it is far lower. Recently W. S. Smith [3] reported an incidence of 0.74 per cent in 9,000 deliveries at the Brooklyn Hospital over the period 1920 to 1930.

Of 317 women in this series, 44, or 13 per cent, reported postpartum hemorrhage at one or more deliveries. We have no way of measuring the seriousness of these hemorrhages, but it is a high incidence. Among the A group there were 22, or 21 per cent, not omitting the 13 who had no full-time deliveries. If these were omitted, the incidence would be 25 per cent. Among the B's, 22 also reported postpartum hemorrhage this being 10 per cent. The differences in incidence are shown in chart 11. Three fourths of the hemorrhages were in first labors, the total incidence being 11 per cent. Most of the labors were instrumental, and the average hours of labor twenty-seven as compared with sixteen for the whole group. The women reporting hemorrhages also reported a relatively high rate of menstrual disorders (especially menorrhagia) abortion and stillbirth, with a prenatal loss of one to each delivery. It would thus appear that these hemorrhages may reflect an atonic condition of the uterus in these women, though atony is no longer considered the prime cause of postpartum hemorrhage.

RECOMMENDATIONS

It will repay Trudeau or any sanatorium for tuberculosis to study the obstetric and gynecologic histories of its women patients, before and after they leave the sanatorium, because little is known of what constitutes the exact relation between tuberculosis and procreation. The mortality statistics tell only part of the story.

First, as to the mothers: Unless the woman dies immediately after delivery, she is entered as a death from tuberculosis or whatever the actual end was caused by, which may not have been tuberculosis at all; in any case, the record will not trace any connection with pregnancy.

Again, if she dies immediately after delivery, the complications of tuberculosis may not be entered, but she will be listed as a puerperal death, particularly if there is septicemia.

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[2] Robinson, C. H.: Seventy Birth Control Clinics: A Survey and Analysis, Baltimore, Williams and Wilkins Company, 1930.

[3] Smith, W. S., Read before the New York State Medical Society in June, 1930.

But mortality statistics represent only end-results and show nothing of processes. The A and B groups saved the same number of living children apiece, but the A's did it at huge cost. When women die in childbirth, only the circumstances of that last delivery are recorded, with at most a bare statement as to the total parity. This does not take in any of the pregnancies terminating before viability, unless these have been operative interventions done in hospitals which report the exact facts. Hospital records usually list all early interruptions simply as dilation and curettage, and only the exceptional cases as therapeutic abortions.

The sanatorium, especially one following up its patients over long periods, practically for their lifetime, is in a position to measure not only end-results but also their significance in relation to the processes by which they were attained in each individual case.

Such a study might be made effective if a thousand women of child-bearing age should be taken in sequence after discharge and their histories followed, to find out:

1. Did they live, or die, and how long after entrance? If dead, the cause, age at death, and relation to tuberculosis.
2. Did they marry?
3. If not, why not? (Explain relation to tuberculosis.)
4. If they did marry:
    - (*a*) Were they ever pregnant:
        1. Voluntarily?
        2. Involuntarily?
    - (*b*) If not pregnant, was this voluntary or involuntary?
    - (*c*) If they were pregnant, determine:
        1. Interval and number of issue.
        2. Result of each pregnancy:
            - Abortion; when, how?
            - Stillbirth; why, when?
            - Live birth; condition at birth and character of labor.
            - Neonatal death; cause?
            - Later death, age; cause?
            - Present age and condition of living children.
    - (*d*) Effect on the mother's health from these experiences.

CONCLUSIONS

1. Pregnancy has a definitely deleterious effect on tuberculous women.

2. The more advanced the tuberculosis, the more deleterious the effect of pregnancy.

3. The women who took sufficient time before getting pregnant after being "cured" (three years or more), and who obey all rules and regulations after leaving Trudeau, fared better than those who did not.

4. Postpartum hemorrhage occurred in a very large proportion, amounting to 44 out of 317 cases, or 13 per cent.

5. Menstrual disorders were very common among this group of tuberculous women, being reported by 47 per cent.

6. Out of the 579 children born, 556 are alive, and 501 are healthy and well. Fifty-five are below par, and only 9 of these have had tuberculosis in any form, or have been suspected.

7. Education of the patient in the care of herself as regards tuberculosis as well as pregnancy is of the utmost importance.

8. Finally, the whole subject is a difficult one; experiences differ, there are many opinions. To pursue the right one, doing justice to the mother, to the child, and to the other members of the family, demands most careful thought, the exercise of the keenest judgment. Volumes have been written on this subject, but little has been done for the unfortunate gravida who has pulmonary tuberculosis. Sanatoriums, clinics, floating hospitals and rest homes have been provided for all ages and conditions of patients except pregnant women. Intelligent guidance through pregnancy, scientific supervision of the labor and puerperium, with proper care of the child and sanatorium treatment for the mother, should be the management for all such cases.

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ABSTRACT OF DISCUSSION

Dr. Alexander M. Campbell, Grand Rapids, Mich.: This study is interesting because it refers to a selected group of very high class women. It shows that in spite of the fact that they are graduates of well known tuberculosis sanatoriums, they had difficulties in bringing children into the world. The mortality was high. Thirty per cent of these women reported that they were definitely made worse by the existence of pregnancy. The fetal loss was high. There were infections. There were all the things that would lead one to assume that, if an intelligent class of women had been trained to take care of themselves as they had, their pregnancies were fraught with so many dangers that the ordinary tuberculous woman must be made to realize the danger of going through pregnancy with this terrible condition. Many of them aborted spontaneously; many aborted operatively; many suffered from menorrhea. There was everything to indicate that all was not well when these women underwent the dangers of pregnancy. The cheerful side of the picture, however, is that nearly all the children were healthy, and that, of course, gives some argument for the adherence to the principle of letting these pregnancies go on uninterruptedly. It seems to me that the lesson to be learned from this study is quite obvious: that, by and large, pregnancy does not improve tuberculosis; that the tuberculous woman should avoid marriage: that if she becomes married she should be instructed as to contraceptive measures and that, if she does become pregnant and her tuberculosis is active and she is the asthenic type to which the authors refer, the pregnancy should be terminated if the patient consults the obstetrician in the early months of pregnancy. Frequently in my own practice, in the woman of advanced years, I terminate the pregnancy by abdominal hysterotomy, and I sterilize the woman at the same time. I think this brings out another point seen in general work, and that is that the great national malady in this country is fatigue. It is seen in every decade of life. The panacea is rest. Women of the asthenic type who become pregnant must be given a great deal of rest, whether they are tuberculous or not.

Dr. C. S. Bacon, Chicago: The same points that were emphasized a few moments ago in regard to the sociological factors in heart disease apply here. A patient who is able to get good care during pregnancy, including proper rest and proper diet, may go through a pregnancy without danger. The question of what to do for the poorer class of patients has been touched on by Dr. Campbell, and the importance of sanatorium care, or proper care in some way during the pregnancy, has been emphasized. Since the establishment of the Municipal Tuberculosis Sanitarium in Chicago, we have had sufficient accommodation for all women who were unable to receive care at their homes. It was thought when that institution was first started that a large number of patients—we estimated at the time probably 200 or 300 a year—would take advantage of those facilities. As a matter of fact, only a few each year have been taken care of in the institution. The difficulty is not that there is no place for them, but most of the patients that should come to the institution are not able to leave their families, many of them being women already with families. Those that have come have had their children and have had fair care, and the report, while not in any way as gratifying as that shown at Trudeau, has been of some value. However, we find this: Most of the specialists in tuberculosis who are not obstetricians insist on terminating the pregnancy at the earliest possible moment without much regard to the prospect of the future or the result of the pregnancy. I think that obstetricians generally are rather urged by their colleagues to terminate pregnancy more frequently than they themselves think is necessary. A number of eminent specialists refuse to terminate pregnancy in the tuberculous woman, holding that the tuberculous condition is not made worse by the carrying through of the normal pregnancy and labor—that it is not worse than if an abortion is induced. I believe that these factors show that we should be more conservative in the termination of the pregnancies. Except in a few cases, in which the women cannot have the proper care at home, there is not very much use in intervening.

DR. HYMAN J. EPSTEIN, New York: The speaker emphasized what has been heard before: "Don't let the tuberculous woman get married, don't let the married tuberculous woman become pregnant, and don't let the pregnant tuberculous woman give birth." But this perhaps is a pessimistic attitude. The woman who wants to have a baby will not listen to such pessimistic advice. The fact is that these women are willing to take any chance that offers them the possibility of offspring. After the war I saw many patients come to the doctor for a termination of pregnancy in the early weeks—the fifth, sixth or eighth week—and all the doctor wanted was a certificate from her physician stating that she had what they call in Germany *lungenspitzencatarrh*, or tuberculosis. A touch of tuberculosis was sufficient for them. That was all they wanted. But the women also are entitled to live their lives, and I believe that if a woman has a chance to have a baby, even with the risk of a stillbirth (although more than 500 women in this study had live children) she is entitled to consideration.

DUST AND PULMONARY DISEASE *

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The subject of dusty trades has received much consideration in recent years. The advances which have been made in all branches of industrial medicine have helped to center attention on dust and its effect on the health, as the number of the workers in dusty trades is larger than that of any other group that is exposed to a single industrial hazard; and an additional reason for increased interest in this subject is that the study of mortality statistics has revealed the fact that workers in dusty trades have an excessive death rate from tuberculosis as well as from other respiratory diseases.

The Public Health Service has recently completed a series of studies of the effects of the principal varieties of dust encountered in industry. These studies cover the following phases of the subject:

1. The cement industry, representing calcium dust.
2. Silver polishing, representing metal dust.
3. The granite industry, representing silica dust.
4. The coal industry, representing carbon dust.
5. The cotton industry, representing vegetable dust.
6. Street sweeping, representing municipal dust.

While these dusts contained principally the elements indicated, they were all mixed dusts. There are very few dusty trades in which the workers are exposed to a specific dust only, as that of silica, carbon or calcium, without the presence of other elements in the dust. The cement dust that was analyzed in these studies contained about 60 per cent of lime and 1 per cent of silica, the granite dust about 35 per cent of free (crystalline) silica and 2.07 per cent of lime. The coal dusts, also, were mixed with rock dust, and in many instances in sufficient quantities to influence the character of the pneumonoconiosis. It may be possible that some of the other elements in these dusts exert a synergistic or inhibitory action; for instance, the lime in cement dust might prevent the development of active tuberculosis. The rôle of dust as a vector of bacteria has been mentioned frequently and there is no doubt in some cases that it figures prominently in the production of excessive morbidity and mortality from respiratory diseases. The harmful action of dust on the tissues and the reaction incident to its removal lower the local resistance and thus favor bacterial invasion.

In the intelligent consideration of dust as an etiologic factor in pulmonary disease, the following points must be taken up:

1. The chemistry of dust.
2. Its concentration.
3. Petrography; the size of its particles.
4. The length of exposure to it.
5. The effects produced:
    - (*a*) morbidity;
    - (*b*) physical condition;
    - (*c*) mortality.

THE CHEMISTRY OF DUST

The dusts most frequently encountered in the industries are inorganic, and, incidentally, these are the most harmful. It has been shown that silica alone produces more permanent pulmonary damage than all other elements found in industrial dust. Originally the dangerous properties of dust were supposed to be dependent on certain physical characteristics, such as hardness of particles and sharpness and angularity of edges. No doubt the physical or mechanical action of dust is a factor in producing chronic pathologic conditions in the upper respiratory passages and the bronchi, but the theory that silicosis is produced solely in this manner by such action has been generally abandoned.

Dr. Collis, in his statement relative to the chemistry of dust,[1] was one of the first to draw attention to the chemical, rather than the physical action of dust. He said: "Generally speaking, dusts are more injurious as their chemical composition differs from that of the human body or from the elements of which the body is normally composed, whence it follows that animal dusts are less injurious than others."

In 1922 Gye and Kettle[2] asked the question, "Why is silica conspicuous, and possibly, alone so, among the common dusts capable of producing extensive fibrosis?" They found that, in experimenting with mice, which possess a high degree of immunity to tuberculosis, if silica was introduced into these animals along with tubercle bacilli, the tissues underwent a considerable degree of necrosis, which fact, after a preliminary lag of a few days, made it possible for the bacilli to proliferate abundantly in the coagulum, being protected by the latter against the cellular defense of the body. These results provided a partial answer to their question, in that the poison did not remain in a particular form at the site of inoculation for any considerable time but was either fixed locally or gradually removed by the phagocytes through the body fluids; when present, it behaved as an active cell poison; but, with its gradual disappearance, normal processes of repair became evident. In a more recent article, Kettle[3] gives further explanation as to why tubercle bacilli proliferate in the necrotic center of the silica lesion, naming the following reasons: "First, the mere mechanical protection of bacilli during their early lodgment in the body; second, the rich pabulum furnished to the disintegrated cells; or third, the stimulating action of silica on the growth of the bacilli." It is also well known that tubercle bacilli grow well in a medium rich in colloidal silica.

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* Approved for publication by the Surgeon General.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Collis, E. L., and Greenwood, Major: Health of the Industrial Worker.
2. Gye, W. E., and Kettle, E. H.: Silicosis and Miner's Phthisis, Brit. J. Exper. Path. 3: 241-251, 1922.
3. Kettle, E. H.: Experimental Silicosis, J. Indust. Hyg. 8: 491-495, 1926.

Kettle's final opinion as to why silica dust is dangerous, as far as the production of tuberculosis is concerned, seems to be that it is not because of the fibrosis produced by the silica nor because of the damage which silica does to the lymphatic system, but that it is simply because of the presence of silica in the lung.

Gardner's experimental work with animals inoculated with a strain of tubercle bacilli of a low virulence and later exposed to dust is noteworthy.[4] A series of guinea-pigs were primarily infected by the inhalation of tubercle bacilli of low virulence. The animals developed an infection, which finally healed by resolution. By placing groups of these infected animals in dusting chambers and subjecting them to at least two months' exposure to dusts, a reactivation of the primary tubercles was brought about as late as from 206 to 400 days after infection. Of these pigs exposed to quartz dust, 73.6 per cent exhibited evidence of a progressive tuberculosis, and likewise 31.8 per cent of those exposed to carborundum dust (SiC) and 26.3 per cent of those exposed to granite dust. The groups of pigs exposed to marble and coal (bituminous) dusts did not undergo a reactivation of the disease. Dr. Gardner states that "the reaction appears to be a specific result of the inhalation of certain definite types of dust, for evidence has been produced to show that factors like overcrowding, lack of proper ventilation and light, endemic pneumonia, and nonspecific inflammations have not influenced this type of tuberculous infection." Apparently the same effect is not obtained with other bacteria in the dusted pulmonary tissues as with tubercle bacilli. The excessive amount of other respiratory diseases can be accounted for, however, by the lowered local resistance caused by the presence of the dust, the irritation produced by mechanical injury, and the diminution of the local blood supply by fibrosis.

CONCENTRATION OF DUST AND SIZE OF PARTICLES

It is necessary to know the concentration of a dust before a definite decision can be made that such dust is harmless per se or that its lack of harmful effect is due to some other element existing in combination with it. A low concentration of a dust containing a high percentage of free silica (quartz) may produce as much harm as a higher concentration with a lower percentage of silica. The fallacy of estimating the extent of dustiness without dust counts is obvious, in consideration of the fact that the particles found in the lungs of workers are less than 10 microns in diameter and therefore cannot be seen with the unaided eye.

Studies of groups of workers exposed to varying concentration led to the conclusion that 10 million particles per cubic foot of a dust containing about 35 per cent of free silica, as quartz, could be tolerated without great injury. Workers exposed to this concentration over long periods developed a mild fibrosis, not of sufficient severity to predispose them to tuberculosis.

The concentration of dust is, hence, a deciding factor in determining dust hazards. If the effects of dust can be shown by roentgen or by physical examination, proof of excessive dust is given; however, if a worker is exposed to an unknown quantity of a supposedly dangerous variety of dust and does not develop pulmonary changes, it is possible that the concentration is within tolerable limits.

PETROGRAPHY

The petrography of dust is valuable in deciding its effects; for instance, the chemical analysis of cement dust indicates that there is a total of 15.2 per cent of silica present, while the petrographic analysis shows that it contains only 1 per cent of free silica or quartz, the known dangerous element. Likewise, chemical analysis of granite shows that approximately a total of 70 per cent of silica is present in it, while by petrographic analysis only 35 per cent of quartz is found.

LENGTH OF EXPOSURE TO DUST

The length of exposure to dust is evidently a great factor in the production of disability. Observations based on physical examination show conclusively that the frequency of the occurrence of silicosis is in direct relation to the amount of dust and the length of service.

The effects produced by the inhalation of dust are now considered under the headings of morbidity, physical condition and mortality. Silicosis and tuberculosis are outstanding here, as they cause a greater amount of disability and mortality in the dusty trades than any other diseases or combinations of diseases.

EFFECTS PRODUCED

Morbidity.—The observations made on granite workers showed that, when a patient who had a latent tuberculous lesion began work in the granite industry, he developed silicosis more rapidly than workers who had no signs of tuberculosis nor history of prolonged exposure to it. It should be determined whether or not a worker has any signs of latent tuberculosis or a history of exposure before he is allowed to enter a dusty occupation.

Most of the illness among the groups of workers studied is due to respiratory disease. The groups exposed to greater amounts of dust have the higher rates. Approximately half of the respiratory diseases were diagnosed as influenza, or grip.

The coal miners (anthracite) had more bronchitis than any of the other workers. The rate was much higher and approximated half of the incidence of influenza, or grip, among them. The rate for granite workers was quite low, considering their exposure to dust.

There is an excessive amount of tuberculosis among granite workers, its incidence being greater than that of influenza. The lower incidence of tuberculosis among gold miners, who are exposed to a high siliceous dust, may be due to the shorter length of their service compared with that of granite workers.

The iron and steel workers, who have had the lowest incidence of diseases shown in these figures, have the highest rate of sickness from pneumonia. The anthracite miners were lowest in pneumonia.

The records from which data were taken for the general manufacturing group were provided by plants in the Northern states and east of the Mississippi River. Practically all the groups have similar climates, and it is believed that these rates are comparable and that variations in climates have not materially affected them.

Physical Condition.—A discussion on the points considered in making a diagnosis of silicosis may be found in United States Public Health Service Bulletin 187.

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[4] Gardner, L. U.: Am. Rev. Tuber. **20**: 833 (Dec.) 1929

Roentgenography gives more information by far than any one other method used in diagnosis; this fact does not, however, warrant the nonemployment of other methods. Early silicosis is not easily demonstrated by roentgenography, because the fibrosis is new and does not produce as dense shadows as it does later from contraction and proliferation, which characteristics are incident to long duration. The presence of the fibrosis of early silicosis can be detected by physical examination. Also, there are in the disease stages in which it is not possible to diagnose or to exclude the presence of tuberculosis without the aid of physical examinations, especially in an early tuberculous complication. That there is a tendency to rely solely on the x-rays as a means of diagnosis is the reason why early tuberculosis in silicotic patients is so often overlooked. I have found that the râles of tuberculosis in these cases are latent or post-tussic, just as in uncomplicated cases.

Tuberculosis was frequently found in our cases with the early lesions in the bases of the lung, and the characteristic râles could be heard in this location. Routine analysis of sputum cannot be too strongly urged. Too often the cases are considered to be free from bacilli when only one or two specimens have been examined. Series of ten are of more value.

A group of cases was selected from workers in several dusty trades. It was found that the character of the fibrosis is similar in a number of these cases, but this similarity does not by any means express the same amount of disability. The fibrosis of the cement worker has a similarity to that of early silicosis of granite workers, but it has been shown that the condition does not progress in the same manner and that the cement workers do not develop tuberculosis at any higher rate than the general population.

It was an interesting observation in the study of workers in dusty trades that, when patients had been exposed long enough to develop silicosis and then changed to nondusty occupations, they did not thus materially lessen their chances of escaping a final tuberculous complication. Granite manufacturers were found to have almost as much tuberculosis as stone cutters and lumpers; many of these manufacturers were formerly stone cutters and no doubt developed silicosis before establishing themselves in their new occupation.

One patient, who developed tuberculosis at age 50, had spent twenty years on a farm, after having worked fourteen years in the granite industry. Other investigators[5] have found that silicosis apparently continues to progress and that respiratory diseases are still frequent complications even after cessation of exposure to dust.

Mortality.—The influence of dust on mortality from tuberculosis is clearly indicated in the following figures. New methods of manufacturing stone which created excessive dust by the use of pneumatic tools were introduced in the granite industry about the beginning of the present century, and the tuberculosis rate has increased rapidly with their use. The rate has risen in direct proportion to the length of time during which they have been employed, as follows: 1.5 per thousand, 1890-1894; 10.8 per thousand, 1910-1914; 19.5 per thousand, 1924-1926 (the period of our observations).

A consideration of the mortality statistics of Barre, Vt., shows that there has been an excessive death rate from pneumonia and other respiratory diseases (tuberculosis excluded) during this period.

There is great contrast between the age of mortality of workers using hand-pneumatic tools, and that among males in rural Vermont, although the rate of the latter may have been influenced by the fact that many disabled cutters move to rural districts.

SUMMARY

Morbidity and mortality records indicate that workers exposed to dust have excessive rates of respiratory diseases.

Inorganic dusts produce more pulmonary disability than organic dusts.

Silica (SiO_2) of the crystalline variety (quartz) is the element in dust which produces greatest pulmonary damage, and it is present in varying extents in most industrial dusts.

Silicosis is insidious in its onset and progress and presents but few symptoms or physical signs in its early stages.

Silicosis is almost invariably complicated by tuberculosis after a number of years of exposure, the time depending on the concentration of the dust and the percentage of free silica which it contains. Latent tuberculosis in persons entering dusty trades is usually activated after shorter exposure to siliceous dust and has more characteristics of the disease.

Before a dusty trade can be absolved of its danger or stamped as dangerous, the concentration of dust and its chemical and petrographic analysis must be shown.

Masks frequently give a false sense of protection. Removal of dust at its source is preferable.

There has been a great reduction in the death rate from tuberculosis among the general population during recent years, while among workers in dusty trades there has been a great increase during the same time in the death rate from this cause.

ABSTRACT OF DISCUSSION

Dr. C. R. Orr, Buffalo: Regarding the nature of the dust offending, it is conceded that sand is the greatest offender. But it has been my experience that any dust can create disturbance in the lungs, which will be manifest by clinical signs and which will in time incapacitate the individual for his daily vocation, some sooner than others. I have records of one position in which death followed exposure after eighteen months for one individual and thirty-two months for another, his predecessor. Both entered their occupations with supposedly sound lungs and passed through the three stages of fibrosis that Dr. Russell has so ably shown us. The diagnosis of these cases is almost entirely by roentgen ray; occasionally I fall by the wayside, but after diagnosis is made a complete history of exposure is taken. On the other hand, there is in the exhibit an excellent example of the danger of depending entirely on the roentgen ray for diagnosis. The film is almost a typical advanced second stage occupational fibrosis, but in reality it is a generalized metastatic malignant growth. I have in mind one particular case in which the diagnosis of second stage fibrosis was made. The history gave the patient's occupation as an actor with no apparent dust hazard. Repeated inquiries brought no light until, finally, I inquired into the particular form of acting of the individual and learned that he was a "buck and wing" dancer and for twenty-five years had scattered sand on the stage before dancing. Dr. Russell spoke about the complications of tuberculosis, bronchitis and similar conditions that attend dust irritation in the lungs. It has been our practice in the hospital whenever possible to follow the cases to the autopsy table. I have found that although records show that there are about 95 per cent of these cases of silicosis which show a tuberculous infection superimposed on the silicosis, that percentage is rather high. On the other hand, I am finding tuberculosis a complication in many cases of anthracosis. Dr. Russell made a statement in one of his previous talks to the effect that he was finding tuberculosis in the bases in his study of anthracosis. I should like to ask him what he thinks now in regard to that infection.

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[5] Pancoast, H. K.: Roentgenological Studies and Other Fibrosis Conditions of the Lungs, Ann. Clin. Med. **2**: 8 (July) 1923. Britton, J. A.: *Silicosis* a Modern Factory Hazard, J. Indust. Hyg. **6**: 199 (Sept.) 1924. Tattersal, Norman: The Occurrence and Clinical Manifestations of Silicosis Among Hard-Ground Workers in Coal Mines, ibid. **8**: 466 (Nov.) 1926.

Dr. Edward J. Rogers, Pittsford, Vt.: My experience in this problem is almost entirely clinical. We get cases with such a history as the following: A man has been cutting granite for a number of years and has often had to lie off during one of the strikes or during one of the adjustments for labor trouble. When he returns to work he finds that he is not as strong as he was when he quit work. He is apt to be bothered with shortness of breath, indigestion and lack of strength. Incidentally he spits a little blood or has pleurisy pains. He goes to his family physician, who tells him that he has a little pleurisy or bronchitis. He then goes to another physician and is told the same thing. Then he tries a physician in Montpelier or at Burlington. Each physician sends his sputum away for examination and after a time the specimens are positive. Finally the patient enters a sanatorium and within six to eighteen months he dies. One patient was under sanatorium treatment as long as seven years before he died, but at no time was he able to return to work. The medical men working in Barre feel that little can be done for these men after the acid-fast bacillus is found, and the general policy is to encourage the granite cutters to keep at work as long as possible, because they earn high wages and while they are earning them they do not appeal to the town or city for support. They provide more fully for their own families and they are out of the house for at least eight hours a day. The physicians who tell them that they have a little pleurisy or a little bronchitis and keep them at work are probably handling the cases correctly. Economically it is better to keep them at work, and they probably live just as long. The physical signs are not those of an ordinary case of clinical pulmonary tuberculosis. The first time they come into an office the physician is able to pick up a seemingly dry pleurisy at one base. They do not have râles in the upper half of the lung, but three or four months later they are apt to have a definite area of dulness, bronchial breathing and sometimes amphoric breathing. After entering the sanatorium they usually live from six to eighteen months.

Dr. Albert S. Gray, Hartford, Conn.: I understood Dr. Russell to say that it was somewhat difficult to diagnose these cases by the roentgenogram in the early stages; that they were more readily diagnosed by physical signs and symptoms. I should like to know what these physical signs and symptoms are. And I should like to know, too, about the number of years it takes for the development of silicosis in the workers exposed to various concentrations of dust; also whether one of these workers who develops a first stage silicosis will continue to develop fibrosis of the lungs if he changes his occupation for a different one.

Dr. R. T. Legge, Berkeley, Calif.: Recently it was my privilege to make a survey in a new field in which silicosis is the result of a dusty occupation. In the southern part of California along the Coast Range Mountains, there are large deposits of diatomaceous earth. This earth consists of fossilized microscopic plants from the sea whose silicious remains during the Miocene period formed the deposits. This material is now mined for the manufacture of fire-bricks and for filtering purposes. On account of many cases of tuberculosis in this part of California, the dust from the mills aroused suspicion, which led to an investigation. The equipment consisted of an especially made automobile which had a portable x-ray machine and also a dark room. One hundred and eighteen employees were selected and chest plates were taken. Each man was given a thorough physical examination. It is rather interesting to note that, in spite of the large amount of silicon present in this dust, only about 1.5 to 2 per cent had active tuberculosis. The x-ray plates, however, showed in every case evidence of an early silicosis or fibrosis. During the physical examination of the chest, râles were unusual and, when present, were usually in the base and not in the apex, as is usual in the case of tuberculosis. There were also many cases of clubbing of the fingers, which is rather characteristic in this type of pneumonoconiosis. In making chest examinations, little change was found in expansion. This is in contrast to cases of quartz silicosis which I have noted among California miners, in which a definite decrease takes place early. Quartz silicosis may be detected by roentgen methods as early as within a year's time. There are three stages: the first may be a normal expansion of 3 inches or more; the second, 1 or 2 inches; and the third, none at all. In the latter stage a deep contraction, particularly in the base of the right lobe of the lung, is uncommon. Death is usually due to a superimposed tuberculosis. Every mine, quarry or other dusty trade should insist on a complete physical and roentgen examination of the chest at the time of employment and at periodical intervals. The roentgenographic method is the best for detecting early stages of silicosis.

Dr. A. E. Russell, Washington, D. C.: I think that Dr. Orr misunderstood my statement in regard to the basal tuberculous lesions in coal miners. Some miners exposed to a large amount of silica dust in rock drilling show the basal type of tuberculosis with more silicosis than anthracosis; but the majority of miners are exposed to coal rather than rock dust. A statement was made in the bulletin reporting the granite-cutting investigation that rest and sanatorium treatment did not help the workers much when tuberculosis had once become manifest. That is borne out by my study. The physical signs of early silicosis are reviewed in the bulletin, and I will not take the time to discuss them in detail. The principle points are a beginning impairment in resonance and a diminished tactile and vocal fremitus, with diminished breath sounds. Later, there is a diminished chest expansion. These points, together with roentgenograms, are the principal things on which I made my diagnosis. In regard to the workers in the diatomaceous earth in southern California, I have stressed the fact in my writings on silicosis that silica of the crystalline variety is, so far as is known, the most dangerous type. There are ten forms in which free silica appears, and I am always careful to designate free crystalline silica, or quartz.

DISABLING BACK PAIN

DIFFERENTIAL DIAGNOSIS AND TREATMENT *

ROBERT McE. SCHAUFFLER, M.D.
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My daily and sometimes hourly puzzle is whether a certain complaint is of mechanical or toxic origin. Is this particular back or knee or foot trouble caused by some congenital deformity or some traumatic injury or by some postural strain or is it some sort of an arthritis, or myositis or neuritis caused by poisons absorbed from some focus of infection elsewhere in the body?

In considering disabling back pain there are other possibilities which must first be cleared up. One must be sure there is no gross lesion, such as a compression fracture of a vertebra or a fracture of the transverse or spinous processes. Good roentgenograms, both anteroposterior and lateral, will settle that. One must also be sure that there is not some destructive bone disease, such as tuberculosis or cancer. Here again, the roentgenogram usually gives definite information. When there is doubt as to the interpretation, the spine should be immobilized and new films made after a two months interval. These usually settle the matter.

Again there is the question of reflected or reflex pain. There may be nothing the matter with the bones, joints or muscles of the back but root pain from locomotor ataxia or tumor or some other lesion of the cord. More often it is a simple reflex pain due to disease or displacement of some viscus. Finally, malingering or a psychoneurosis must be excluded.

Any case presenting a disabling back pain is entitled to a complete investigation. The history must be carefully taken. The physician must ask the patient about the onset of the pain, whether preceded by any accident, whether he has done anything unusual in work or play; also whether he has had any sickness in the month preceding the onset; any cold, sore throat, bilious attack or anything out of the ordinary. It is important to discover whether the patient had ever had neuritis or arthritis in the limb joints and whether any local focus was discovered or suspected. Special inquiry should be made as to the bowel function.

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A general history should be recorded and recent gain or loss of weight noted. There may have been a fall or a blow on the back. More often there is the history of a lifting strain. It is important to know whether the disability was immediate or after a few hours or days. If there was immediate disability or if the patient worked on through that work period but was unable to start the next period, it sounds like a mechanical lesion. If several days intervened before disability, it suggests a toxic lesion started up at the site of a mild trauma. A patient may have a mechanical lesion without any knowledge of the minute or hour when it began. These are usually postural, from habit or occupation, or perhaps from some unusual posture, such as long riding in a motor with an uneven seat or a back to which the patient is not accustomed.

The patient is observed as he walks into the office and as he sits down and stands up. Much can be learned from the way he handles himself. History should be taken quietly and the pulse, blood pressure, pupil reactions and knee jerks tested before the clothing is removed. The back must then be fully exposed. My set-up is an old fashioned piano stool, on which the patient sits and can be turned in any direction, and a pair of gymnasium rings hanging from the ceiling to which the patient can hold while standing to steady himself and by which he can stretch his back or chin himself.

The type of build is noted, whether long and slender and disposed to visceroptosis or short and thick set. I observe the back with the patient sitting and standing. Any lateral deviation, high hip or side shunt or curve is noted. Many women have old, slight, lateral curves which have existed since girlhood and are not the cause of symptoms. The anteroposterior curves, the amount of lumbar lordosis, any abnormal kyphosis and any asymmetry are noted. Any muscle spasm of the long spinal muscles should be noticed especially, and if none is noted, it should be seen whether movements or pressure produce muscle spasm. Then the range of motion permitted in flexion, side bending and rotation is tested. If this is limited the physician should try to decide whether it is due to partial ankylosis or to pain or fear of pain. Any points or areas of tenderness in the back to light touch or heavy pressure should be carefully noted. Careful distinction should be made between a site of pain and local tenderness. Once the patient's attention is called to it he will often show just where he has a pain at that time or frequently does have one, yet he says that pressing on the spot does not make it worse. In some reflex pains, a light touch hurts but firm pressure does not.

It is easy to pass the hands forward and note the chest expansion and the abdomen, whether thin or fat, normally firm or flabby, or whether pendulous; also, whether there is tenderness or muscle splinting.

The patient hangs from the rings and I note whether any abnormal curves of the spine straighten out or persist. Unless the patient is in much pain, recent lesions straighten out while old ones with structural changes do not. It is important to see how much the patient can overcome his deformity by his own efforts with the aid of a hand pull on a ring and perhaps a book under one foot. It is also important to see in what position he is most comfortable. One must have this information to know in what position to immobilize the spine.

Next the patient is placed flat on the back on the examining table, and the indirect tests are carried out; the thighs are flexed with the knees flexed and then with the knees straight and especial note is made regarding sacro-iliac pain and secondary sciatica. The abdominal examination is made at this time and, if there has been a midsacral pain suggestive of pelvic reflex, the physician may decide to make a vaginal or rectal examination.

The patient now usually goes to the x-ray room for films of the pelvis, lumbar and lower dorsal spine, both anteroposterior and lateral, and films of the upper part of the spine if there is a deformity or pain there.

The case in which the roentgenogram shows some abnormality may first be considered. There may be a tilting of the pelvis and lateral deviation of the spine. This may be due to an old faulty posture or to distortion due to pain. If it is the latter, muscle spasm should have been noted. Such asymmetry of the spine alone is seldom the cause of the pain for which the patient is seeking relief.

The roentgenogram may reveal a fracture or some destructive bone lesion. In that case the diagnosis is usually made or there is left only the problem of the cause of the erosive bone lesion.

There may be an increase of the lumbosacral angle which might be the cause of chronic strain and pain. There are occasional cases of true spondylolisthesis. This term is usually limited to a definite displacement between the fifth lumbar vertebra and the sacrum or a displacement between the fourth and fifth lumbar vertebrae. To justify the diagnosis, the displacement must be apparent in the lateral roentgenogram, which should be centered lower down than in the usual lateral view.

The roentgenogram may show congenital malformations of the spine. It may be puzzling to know whether these are the cause of the back pain that brings the patient to the physician. Misshapen vertebrae usually lead to deformity early in life and it is found that the patient has had an abnormal curve of the spine for years. Spina bifida occulta is seldom a cause of back pain. The more pronounced cases may cause bladder symptoms or may cause a weakness of the lumbosacral region which favors spondylolisthesis. Complete sacralization of the fifth lumbar vertebra rarely causes symptoms. If it does, they will be referable to strain between the fourth and the fifth lumbar vertebrae. Unilateral sacralization of the fifth lumbar vertebra is more likely to cause pain because of the unbalance of the spine. Impaction of transverse processes of the fifth lumbar vertebra is seldom a cause of pain. It would be better to say that true impaction seldom occurs without sacralization. If two or three plates are taken with the patient lying on the back and the tube is shifted up and down, one will show no impaction. If there is impaction there is usually some evidence in the roentgenogram of the formation of a facet. Spontaneous cure is often affected by arthritis and ankylosis; that is, secondary sacralization.

In general it may be said of the congenital deformities of the lower spine in adults discovered by the roentgen ray that they are seldom the cause of the pain for which the patient is seeking relief. If they have any effect it is as a predisposing cause; that is, the back may be a little weaker in the bony structure and so more subject to sprain or strain or to a low grade arthritis.

In middle aged or old people the roentgenogram often shows hypertrophic arthritis. There are the usual rims or spurs with bridging in the more advanced cases. One now has quite a problem to decide whether these changes are the cause of pain. It is known that quite often when roentgenograms are taken of older people for some other reason, these hypertrophic changes are noted in the spines of individuals who make no complaint of backache. When there is bridging at a few points which are irregularly placed, so that the check to motion is not symmetrical, it is more likely to cause pain than with the more evenly distributed lesions. Pain along the line of a nerve that might be pressed on at its exit is also more probably caused by the exostosis.

Not infrequently in these cases I decide that the localization or distribution of the pain does not fit the lesions shown by the roentgen ray and go on to make some other diagnosis.

This may be of a mechanical lesion or of a coexistent infectious arthritis or myositis. An old infectious arthritis may show some changes in the adjacent bone.

With negative roentgenograms or those showing only a tilting of the pelvis and lower spine has the problem finally been reduced to a differentiation between a sprain and a toxic or infectious lesion of the joint or muscle? As noted earlier, lesions of the central nervous system and visceral reflex pain have still to be eliminated. What of faulty posture? It is usually only a predisposing cause. It must be remembered that an individual may have had a faulty posture for years but sudden gain of weight or rapid loss of strength or radical change of occupation may cause a relatively sudden onset of backache. Usually the postural fault operates by way of ptosis. As ptosis increases, with loss of tone and congestion or dilatation of the viscera, the drag causes backache. This is usually annoying rather than disabling. Not infrequently the ptosis leads to colonic stasis and so the faulty posture becomes a predisposing cause of an infectious lesion of the back rather than a mechanical one.

Careful attention to the history and to the mode of onset and course of the back pain will help to decide whether one is dealing with a sprain or a mechanical strain. For years sacro-iliac displacements or sprains have been overplayed. Then the honors were divided between lumbosacral and sacro-iliac sprains or they were simply said to be a low back sprain. Now the pendulum has swung far to the opposite side and many articles in recent literature claim that all these back pains are toxic. Myofascitis is the popular term.

As always, the truth lies between the extreme views. There are lesions purely mechanical and any associated inflammation is of a traumatic type and not at all of a bacterial type. There are many others which are purely toxic; a myofascitis or arthritis is similar to muscular or joint rheumatism in the limbs or to a toxic neuritis. In the back there is also a large group of a mixed type. Posture was a predisposing cause, or injury an exciting cause, but the toxic element is responsible for the continuance of the trouble.

The local focus may be teeth or tonsils or any other lesion that could cause an infectious arthritis. There is a strong tendency in recent literature to claim that colon stasis and colon toxemia are almost the sole cause of these painful backs. This should be very gratifying to me, since I have talked for years of the importance of considering the colon as a possible focus causing infectious arthritis. I feel that at last the colon is being overplayed, for I find that other foci, such as the teeth, may be the sole cause of some back lesions. The physician's duty is to investigate all possible foci of infection and to treat any that may seem probable causes.

In the meantime, rest is important. The patient should have sweat baths or long exposures to infra-red or other powerful lights. Salicylates and alkalis are indicated in liberal doses. I do not manipulate these patients or apply plaster casts, but I often use a reinforced corset, at first for comfort, and later, as a protection to the back when they resume work.

So far no mention has been made of the neuroses. These come in at times to disturb the diagnosis and all too often to set at naught the treatment. There is occasionally a complaint of disabling back pain which is a manifestation of hysteria in the ordinary run of cases. The greater number of them are in persons who have a damage suit in view or who are receiving accident benefits or workmen's compensation. Some are pure malingerers, but the majority have some basis of uncertainty, or fear, or loss of confidence. All too often the "bad thought" has been given them by the osteopath or the local physician who delights to differ with the company doctor. These patients usually had some real back injury to start with. Frequently it was not taken seriously and was not treated promptly by the first physician in charge. Roentgenograms were delayed. Early rest and adequate support was not provided or the patient was not followed up and encouraged and helped to resume light activity before attempting heavy work. Then the situation was aggravated by the late application of a brace and a long drawn out course of physical therapy.

Simple treatment early with assurance and close attention to the general health and morale, could have prevented the patient's becoming a "chronic" except in the patients with too broad a yellow streak or the inveterate seekers of compensation.

The treatment of acute and chronic sprains or strains is largely mechanical. Rest of the patient and partial or complete immobilization of the back is indicated. There is no medicinal value in adhesive plaster, and merely to enclose the patient in a culvert of plaster of paris is only to increase his discomfort.

Immobilization must be as nearly as possible in an anatomic position, and the pull of the adhesive plaster or the turn of the plaster bandage must be for the definite purpose of relieving a ligamentous strain and maintaining a favorable position for repair. Muscle spasm and malposition to dodge pain have usually resulted in a distorted position of the back and pelvis. In early cases this may be overcome by partial suspension, with perhaps one foot raised and the patient assisted by the hands of the surgeon. Strapping can then be applied firmly to the pelvis and lower part of the back over a properly shaped sacral pad of saddler's felt.

If the patient cannot be straightened out, a few days' rest in bed, with heat and sedatives, may gain enough relaxation to enable one to pose the patient. Some surgeons advocate extension in bed.

In more severe cases an anesthetic should be given and the muscle spasm thoroughly overcome by manipulation, and reposition to the anatomic position gained. At times it is quite a problem to decide what is the anatomic position for a certain individual. His original build must be considered and how it may have been modified by age or habit or occupation. Usually these patients need more lumbar lordosis, but a certain group should have the lordosis curve lessened. If the anesthetic has been necessary I always put on a plaster cast, using the Goldthwait frame or, sometimes, a fracture table. The cast holds securely what has been gained. Sometimes I do not estimate the position correctly and have to put on a second cast in forty-eight hours. The jacket is not considered a success unless the patient can be up in a few days. The plaster jacket is soon replaced by a leather or celluloid jacket or a back brace. The plaster cast is split and removed for the model or measurements and promptly replaced and strapped together.

Less severe cases can be put in a brace or reinforced corset at once. In all cases the lumbar and lower dorsal spine should be controlled at once. The ordinary sacro-iliac support is useful in my hands only when recovery is well advanced or as a safeguard against a relapse. However, if the brace or corset does not adequately protect the lumbosacral and sacro-iliac joints, it will be a failure. A proper sacral pad, not too big or too hard, is necessary, as well as a pelvis overstrap on all corsets.

These back braces and corsets require much more personal attention from me than do even complicated limb braces. The rigid stays must be reshaped, the pads altered or the overstrap shifted.

Almost as soon as a physician has a patient comfortable in a back support, he must begin to think of when and how he can get him out of it. If the patient is just left to go on wearing the support indefinitely it is likely to become a life sentence. It should early be removed for heat and massage and a little later for gentle exercises. If possible, the patient should soon begin to do chores or light work in the brace. Then the brace may be shortened or replaced with a lighter support or left off part of the time.

The back tends to become stiff or weak if the brace is worn too long. When the patient tries to bend, he has a little discomfort and is afraid to go on trying. The Morse sine-wave current is valuable at this stage to loosen up and strengthen the back muscles.

Patients with toxic lesions of the back imposed on mechanical disturbances naturally require a combination treatment.

A few patients who are not relieved by a brace or, if relieved, cannot get along without a brace are suitable for arthrodesing operations on the low lumbar and sacro-iliac regions.

It must be evident from the difficulty in diagnosis and treatment of low back pain that great care must be taken in the selection of cases for operation or the results will be disappointing. Failure is almost certain in long standing compensation cases and in psychoneurotic patients.

In a series of sixty-six private patients, all adults and with no medicolegal or compensation cases, the following distribution of back lesions occurred:

A roentgen examination was positive and diagnostic in twenty-one cases: Six minor fractures: five compression and one transverse processes. Seven erosive bone disease: three tuberculosis of the body of the vertebra without kyphosis; one tuberculosis of the sacro-iliac vertebra; three metastatic carcinoma in which the primary growth had not been discovered prior to my consultation. Three spondylolisthesis: two with congenital malformation, one a spina bifida occulta and one with six lumbar vertebrae with sacralization of the sixth, and a slip between the fifth and sixth lumbar vertebrae in a patient with pellagra. One unilateral sacralization of the fifth lumbar vertebra with separation and pain on the opposite side. One impaction of the transverse process of the fifth lumbar vertebra with arthritic changes. Three hypertrophic arthritis: two primary lesions with irregular bridging and one secondary to old scoliosis.

In ten more the roentgen examination was positive but showed only a predisposing cause or a lesion not the cause of pain. There were seven congenital malformations as follows: three with six lumbar vertebrae, three with spina bifida occulta, one with sacralization of fifth lumbar vertebra.

There was one case of mild spondylolisthesis and one with hypertrophic arthritis in which the real lesion was infectious arthritis, and one hypertrophic case in which a lumbosacral sprain was the cause of pain.

There were forty-five cases in which the roentgen examination was negative or showed only asymmetry of the pelvis and spine due to acute pain or posture adaptation to recurrent or chronic pain. Of these, twenty were mechanical or largely so; fifteen were infectious; eight reflex pain, and two neuroses.

The mechanical group comprised: Twelve acute or subacute sprains; one from a fall, two from motor car crashes, five from lifting, four from long or hard driving of a motor car. Five chronic or recurrent sprains; two postural strains; one postural strain with the addition of trauma.

In half of the acute sprains there was some recurrence or relapse which required treatment but which are not listed a second time.

Of the fifteen cases of infectious arthritis or myositis, nine gave no history of trauma or strain and six followed some mechanical stress.

The reflex pains were: Cord changes from syphilis, two; cord changes from pernicious anemia, one; visceral reflexes, five.

It must be admitted that there may have been some infectious element in some of the cases listed as mechanical. One cannot avoid doing anything which might help in some private cases. To a considerable extent I have tried to make the therapeutic test fairly decisive by using only mechanical measures with one group and treating foci and using drugs with the other. Physical therapy was used more or less with each group. Naturally I have sometimes started with one theory and shifted to the other as a result of failure of the first to give relief.

For contrast I am giving a series of sixty-six consecutive cases of major complaint of the back examined by me at the Research Hospital Diagnostic Clinic, a pay clinic for referred cases, mostly chronic:

A roentgen examination was positive and diagnostic in sixteen cases: tuberculosis of the vertebra, one; metastatic carcinoma, one; Hodgkin's disease, one; obscure osteomalacia of the spine, one (probably of parathyroid origin); spondylolisthesis with congenital malformation, one; postural spondylolisthesis, two; hypertrophic arthritis, seven, and infectious arthritis with bone changes, two.

A roentgen examination was positive but not diagnostic in eleven cases: congenital malformations, seven (not counted in the total); hypertrophic changes but lesion of infectious arthritis, two; hypertrophic changes but lesion of visceral reflex, one, and spondylolisthesis but lesion of infectious arthritis, one.

A roentgen examination was negative or showed only lateral asymmetry in forty-six cases: traumatic sprains, three; occupational postural strains, two; sprains followed by infectious myositis or arthritis, five; infectious myositis or arthritis, twelve; posture plus visceral ptosis, five; reflex from true visceral lesions, six; mixed with mechanical features, visceral lesions and foci of infection, ten, and psychoneuroses, three.

There were a good many cases in each of these series in which the diagnosis was difficult. In some the etiology was obscure. In others, so many possible etiologic factors were found that the choice of the most probable was difficult or could be decided only by therapeutic tests. Here is one case that illustrates this type:

Mrs. C., aged 49, had had a low backache for many years. Since an operation on the appendix and gallbladder three years before she had been badly crippled. The pain now extended from the lower part of the back into the thighs. Besides, she complained of poor circulation and of gastro-intestinal distress.

The patient was a moderately heavy woman with a fair contour of back. Forward bending caused low lumbar and sacro-iliac pain on the right. Straight leg raising caused right sacro-iliac and sciatic pain.

The complete general examination offers support for three theories. For mechanical: long history, marked congenital malformation, lumbarization of the upper part of the sacrum, and poorly fused asymmetrical sacro-iliac joints. For reflex: fixed lower uterus and pelvic tenderness. For toxic: slight arthritic pains in some other joints, some suspicious teeth, a spastic colon with some cecal fixation, and a basal metabolic rate of minus 15.

Recommendation: Hospitalization, a few days of intravenous salicylate-iodide and then the removal of suspicious teeth. Regulation of spastic colon and a course of thyroid extract. Physical therapy to the back and a corset brace with rigid back stays, special sacral pad and good abdominal lift.

If other conditions improve but the low back pains remain at the end of six months, hysterectomy and mobilization of the cecum are indicated.

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ABSTRACT OF DISCUSSION

Dr. Archer O'Reilly, St. Louis: Backache is not simple but complicated, and consequently a condition that should be treated with a good deal of respect. Backache is a common symptom. Success in its treatment depends to a great extent on the care with which the patient is examined. One of the most important things is to make a careful study of the case and an accurate diagnosis. Is it traumatic or due to postural strain? Is its origin toxic or due to a definite pathologic condition? Of course, no accurate diagnosis can be made unless a roentgenogram is taken. It has been my misfortune to see a great many cases of backache that have been treated without this. A lateral and anteroposterior view should be made in every case, whether it seems serious or not; otherwise, some condition may be overlooked. A stereoscopic view is useful, but I do not think that it can take the place of a lateral view. The detail must be good, or compression fractures may be overlooked. The question of abnormalities of the lower part of the back is of interest and I feel that they are almost more common than the so-called normal. Many of these, I feel, cause little trouble, but some are predisposing factors to backstrain, and a person with an abnormality of the lower spine may more readily develop backache as a result of trauma or toxin. Good roentgenograms are essential in studying abnormalities and skill is required in interpreting them as one may be easily led astray. The roentgenogram of the lower part of the spine is tricky and one may easily see things that do not exist. A roentgenogram should be made immediately in all back injuries. I have seen a good many cases in which a diagnosis of back sprain was made and no roentgenogram taken that later showed fractures of various types. As a result of this neglect the patient was allowed to suffer unnecessarily, time was lost, and his earning power was reduced. It should seem unnecessary to mention this, but it happens time and again and I think that the medical profession is remiss in not seeing that these patients get the proper attention at the time of injury.

Dr. Fremont A. Chandler, Chicago: I want to emphasize one point. The lower part of the back may be the seat of multiple congenital anomalies, some of which may predispose to injuries and discomfort and some may have no relation to it, but low back conditions should be subdivided as accurately as possible. I have investigated these cases operatively and believe that there is a definite fracture in a great number of these cases which is almost always overlooked. All these patients show the same roentgenographic picture and the same clinical picture; that is, distress on prolonged standing. They may stand for a short time without discomfort. Prolonged standing causes discomfort in the back and also down the leg. They may walk two, three or four blocks with comfort, but when they walk ten or twenty blocks they are very uncomfortable and have to sit down. This will help in classifying many of these fractures. Dr. Willys has found such lesions in an average of 3.8 per cent of skeletons to which he had access. If that fits in with the clinical observations, this diagnosis is being missed in a vast majority of the cases.

Dr. Guy A. Caldwell, Shreveport, La.: I am sure there will be general agreement with Dr. Schauffler, especially when civil courts are in session, that every patient with back injury seems to be more or less affected by the desire to obtain a liberal settlement. I have had occasion to make reexaminations in twenty-two compensation cases from several months to several years after the claims had been settled. Fifteen, with negative roentgen observations, showed sacro-iliac symptoms of varying duration and severity; in five of the fifteen there were associated sciatic symptoms. On reexamination of the fifteen patients after settlement had been made, only one was apparently cured; eight could do only light work and were approximately 50 per cent disabled, and six were still totally disabled for hard labor. Thus, after all question of compensation had been ruled out, 40 per cent were still totally disabled, 53 per cent had 50 per cent disability, and only one was apparently cured. These figures not only are a sad commentary on the ineffectiveness of treatment but also indicate that compensation neurosis was certainly not a great factor in these cases. There were six other compensation cases reexamined after settlement in which there was roentgenographic evidence of fracture or dislocation of the fifth lumbar vertebra. Three of the patients were still totally disabled and the other three were at least 50 per cent disabled for heavy duty. The study of all these cases emphasizes the fact that negative roentgen observations in cases of low back injury are of no practical value in prognosis and treatment. The courts, most general surgeons, and some orthopedic surgeons undoubtedly place too much emphasis on negative roentgen observations. Many are prone to visualize the degree of pathologic change from the roentgenogram and to formulate the diagnosis and treatment from this false basis. Dr. Schauffler's suggestions for the treatment of cases with associated neuroses are logical and useful, but by his own admission they are often inadequate and ineffective. The small group of compensated cases which I reexamined after settlement made me feel that the neurosis was a very small factor and that no amount of psychotherapy, even the liberal use of greenback poultices, will effect a real cure in the majority.

Dr. Robert McE. Schauffler, Kansas City, Mo.: The question is, Are these fractures or are they an increase in a congenital cleft? Was there a lack of fusion there and as a result of trauma or strain was that gap increased? I have been inclined to regard them under the latter head. I remember seeing only one case that I was sure was a fracture. Two of Dr. Chandler's cases looked as though they were bona fide fractures. That they are the cause of the disability is obvious in either instance, and it is very important to look for them. Dr. Caldwell's looking up of his compensation cases is interesting and helpful, and excuses some of these chaps. I am still inclined to think that the continuing disability in at least half of the cases was not on account of the severity of the injury but because they did not get adequate treatment early or because they could not get out of the rut. The patients were afraid to leave off the brace, afraid to go back to their work because their compensation would stop, until it was too late. If there were some way to get these men at light work, if something could be done with physical therapy beyond merely baking them, really good massage, more sine wave treatment, which helps exercise these muscles, helps do away with some of the weakness and some of the fibrosis that results, I think a better showing would be made. Persistence is necessary. I remember one doctor on whom I put two different casts without relief. All his friends said it might be toxic, and the diagnostic clinic could not find anything wrong. Finally I put a third cast on him, standing in extension on the frame and partly untwisting. This gave relief and a brace completed a cure.

THE REACTION OF THE CONTENT OF THE GASTRO-INTESTINAL TRACT[*]

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The various digestive enzymes that are poured into the gastro-intestinal tract require different chemical reactions of the gastro-intestinal content for optimal activity. These reactions vary from one definitely acid for the stomach to one neutral or slightly alkaline for the remaining portion of the gastro-intestinal tract. The changes in reaction of the gastro-intestinal content as it passes through the gastro-intestinal tract, necessitated because of the needs of the various enzymes, have formed the basis for many physiologic problems and have offered the possibility for the development of certain pathologic conditions. The actual changes in the acidity of the gastro-intestinal content at various portions of the gastro-intestinal tract and following various diets are in themselves of considerable physiologic value. The mechanism whereby the changes are graded as the content passes, for instance, from the acid secretion in the stomach to the neutral or alkaline secretion in the duodenum also raises problems of considerable physiologic significance.

Several years ago, Mann and Williamson[1] developed a method for the experimental production of peptic ulcer, based on the theoretical consideration that chemical and mechanical factors are important in the production of this lesion, and that the exposure of the ulcer-bearing area of the gastro-intestinal tract to an acid medium depended not only on the amount or concentration of the acid produced but also on the mechanism that neutralized the acid. The experimental procedures designed on these theoretical considerations were almost invariably productive of subacute or chronic peptic ulcer, characteristically similar both macroscopically and microscopically to the lesion seen in man. However, these investigators were not able to determine whether the theoretical considerations that made possible the development of a successful method for producing chronic peptic ulcer were correct. In order to determine this, it would be necessary to observe the changes in acidity taking place in the gastro-intestinal tract, particularly at the pylorus and in the duodenum, at frequent intervals over long periods of time in the fasting state and following the ingestion of various types of food. These observations should give information with regard to: (1) the variation of acidity occurring in the stomach; (2) the changes that take place at the pylorus and in the duodenum, and (3) the extent to which various types of food affect the chemical reaction of the content.

The first difficulty to overcome was in the development of a reliable method for obtaining specimens of the content of the gastro-intestinal tract at various levels. Such a method should make it possible to secure specimens from various levels of the gastro-intestinal tract repeatedly, and without affecting the normal physiologic mechanism of the gastro-intestinal tract or the general condition of the animal.

Several methods have been developed. In a limited way, it is relatively easy to determine the changes of reaction of the gastric content, by the withdrawal of specimens through a stomach tube. On the other hand, this method is limited to the study of the reaction occurring following the ingestion of food that can be withdrawn readily. Although specimens may be obtained readily from the duodenum of human beings by means of the duodenal tube, only rarely have we been able to secure duodenal content with a duodenal tube from the dog. The results of observations on such specimens were also open to the criticism that gastric content was passing through the pylorus, owing to the presence of the tube. One of the oldest and most used methods of obtaining specimens of the content of the gastro-intestinal tract is through a fistula directly into the desired portion. This method usually is not satisfactory because of leakage from the fistula, with the resulting effect on the general condition of the animal. Not only is it difficult to prevent the action of the digestive juices on the surface of the body on which they are discharged, but, as Walters and Bollman[2] have shown, characteristic changes and death almost invariably follow the formation of an external fistula of the upper part of the digestive tract. It has not been found simple to obtain the content of the intestinal tract below the first portion of the duodenum, either in the human being or in experimental research. It is possible to pull up a loop of intestine and to transpose it under the skin, and at a later time to puncture both the skin and the intestinal wall with a needle and withdraw the contents by a syringe. However, the number of specimens that can be so obtained is limited, and we have not found the method satisfactory. Experimental studies also have been made on gastro-intestinal content secured by opening the abdomen under anesthesia, ligating at various points in the gastro-intestinal tract quickly, to isolate the content in the loops between ligatures, and thus secure specimens. Such experiments are necessarily complicated by an anesthetic, and peristalsis could readily change the fluid from one portion to another while preparations for securing the material were being made.

After the various procedures mentioned had been tried, the following exceedingly satisfactory method was developed: The essentials of the method consist in isolating a loop of the terminal portion of the ileum from 8 to 16 cm. in length: maintaining the continuity of the intestine by suitable anastomosis; anastomosing the distal end of the isolated segment end-to-side to the portion of the gastro-intestinal tract to be tapped, and bringing the proximal end of the isolated loop to the skin. The site from which specimens were to be secured was thus connected to the outside with a tube of intestine. Since the peristaltic waves in the transposed loop were from the surface of the skin toward the lumen of the intestine, leakage did not occur. In this manner, by the simple insertion of a catheter through the transposed loop, it is possible to secure specimens every few minutes for many hours. Animals thus operated on have remained in excellent condition for several years. The procedure has not seemed to affect the activity of the gastro-intestinal tract. It is possible to tap the gastro-intestinal tract at any point from the cardia to the colon. It is also possible to tap it at two or more places, so that specimens can be obtained simultaneously at different points.

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[*] From the Division of Experimental Surgery and Pathology, the Mayo Foundation.

[*] Read before the Section on Pathology and Physiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Mann, F. C., and Williamson, C. S.: *The Experimental Production of Peptic Ulcer*, Ann. Surg. **77**: 409-422 (April) 1923.

[2] Walters, Waltman; and Bollman, J. L.: Experimental Acute Gastric Fistula, Arch. Surg. **13**: 578-587 (Oct.) 1926.

With a satisfactory method at hand for obtaining specimens of the gastro-intestinal content we have observed the changes in reaction that occur in the fasting animal following various diets, and following the carrying on of the therapeutic procedures that have been used clinically for changing the reaction of the gastro-intestinal content.

The hydrogen ion concentration of the samples of intestinal content was determined by the quinhydrone gold electrode with a Leeds and Northrup potentiometer. This method was found to be advantageous in several respects: a few drops of intestinal content are sufficient for a determination; the determination can be made in less than a minute after withdrawal of the sample, and exposure of the sample to loss of carbon dioxide is reduced to a minimum; the method is consistent and gives results that are slightly higher (0.05) than determinations with the hydrogen electrode. One disadvantage of the quinhydrone method in our hands has been that we are unable to obtain reliable results if small amounts of blood contaminate the sample of intestinal content. This error is greater than could be accounted for by the buffer action of the blood present, and for this reason we have discarded any sample of intestinal content that contained a trace of blood.

All of our results have been obtained with normal-appearing, healthy dogs which were maintained on our usual kennel diet except for the days when the tests were performed. The test was as follows: Food was withdrawn from the animals' cages at 4 p. m. the day previous to the test; at 7:30 a. m. the animals were allowed thirty minutes of outdoor exercise away from food; at 8 a. m. the animals were taken into the laboratory and samples of the intestinal content were obtained at intervals of fifteen minutes; at 9:30 a. m. the animals were fed and subsequent samples were withdrawn at intervals of fifteen or thirty minutes until 4:30 p. m., when the animals were returned to the kennels. Two or three samples were obtained the following morning, before the animals were allowed the routine diet.

RESULTS

Stomach.—In the fasting animal, the small amount of gastric juice present in the stomach was usually found to be of about p_H 1.5 to 2.0. Occasionally readings almost neutral, p_H 5.5 to 6.9, were obtained, particularly if the routine procedure was broken and the samples were obtained before the dog was brought into the laboratory. After a meal, the gastric content immediately assumed a reaction depending somewhat on the nature of the food, but with most diets a reaction approaching neutrality was reached. The gastric content rapidly became more acid; within ten or twenty minutes the p_H usually reached about 4.0. About two hours after feeding, the acidity of the gastric content was about 2.0, but the increase in acidity was irregular and at times was found to be reduced, as though some neutralizing factor had been introduced. From two to four hours after a meal, the acidity of the gastric content usually approached p_H 1.5 and remained in this neighborhood for the rest of the day, except for a few brief periods of neutralization, in the course of which it sometimes rose as high as p_H 4.0.

Duodenum.—In the fasting dog the duodenal content was usually found to be of about p_H 7.6, with occasional variations as low as p_H 5.6. In fasting dogs in which high acidity of gastric content was found, p_H 1.5, occasional determinations in the duodenum gave results as low as p_H 2.0, but readings taken a few minutes later were higher again. After a meal, the p_H of the content of the duodenum followed somewhat the course of that of the stomach. In the first thirty minutes the p_H usually remained around 7.2. After this time, more rapid fluctuations appeared; most determinations were in the region of p_H 5.5, with frequent values as low as p_H 4.6. About two hours after feeding the p_H began to rise slightly, but occasionally readings indicating considerable acidity, p_H 1.8, were obtained. The general tendency was toward neutrality and the rise was gradual to a point about p_H 6.8. The alkaline readings, characteristic of fasting, p_H 7.6, were seldom obtained until six hours had elapsed after feeding, and frequently more than twelve hours elapsed before this reading was obtainable. Variations in a more or less normal diet did not produce marked changes in the acidity of the duodenum except as they affected the acidity of the stomach. After a meal of raw meat the duodenal acidity was only slightly greater than it was after a meal of milk.

Jejunum.—The content of the jejunum from 30 to 50 cm. below the ligament of Treitz was slightly alkaline in the fasting animal and did not appear to be greatly influenced by the diet. Usually the p_H was from 7.0 to 7.6, but in several instances, in trained animals, the values were as low as p_H 5.6. After feeding, there was a slight change in the p_H of the jejunal content, with a tendency for it to become more acid, usually to p_H 6.8 to 6.2, five or six hours after feeding. Shortly after this time, the p_H again approached the fasting level, but it seldom reached this point on the day that the test meal was taken. On rare occasions, from two to four hours after a meal, an individual determination showed the p_H to be as low as 4.0, but a few minutes later the usual readings were obtained.

Ileum.—The content of the ileum 100 cm. below the ligament of Treitz, and also 70 cm. above the cecum, was usually alkaline in the fasting animal; the p_H was from 7.0 to 8.0, with an exceptional reading as low as p_H 5.6. The diet of the preceding day had a slight influence on the acidity of the ileac content, but there appeared to be other factors which had a greater influence. After a meal there was little change in the p_H of the ileac content. There was a slight tendency toward acidity, to the degree of p_H 6.5, and an exceptional reading was sometimes found as low as 5.4. These rapid fluctuations, however, were almost entirely absent from the ileum. We found the reaction of the content of the terminal portion of the ileum to be similar to that reported by Dean, that is, a p_H usually above 7.5 with an occasional reading as low as 6.0.

Colon.—The acidity of the content of the middle portion of the colon in the fasting animal depended somewhat on the nature of the diet. With a diet free from meat, or with a mixed diet, the p_H was usually found to be about 7.4, but at times it was found to be as low as 6.5. With a diet rich in carbohydrates the acidity was sometimes found to be as low as p_H 5.5. After a meal there was little change in the acidity of the colon within the first four to six hours, after which time very slight increases in acidity were sometimes found after a diet rich in protein or after a mixed diet. With a diet rich in carbohydrate, however, the p_H sometimes reached 4.4, although the more common reading was about p_H 6.0.

Therapeutic Diets.—The changes in acidity of gastric content brought about by the introduction of food and the persistence of high acidity in the stomach after the food had passed, clearly indicated that frequent feedings tended to reduce the acidity of the gastric content. With feedings of milk and cream, 120 cc. every two hours, high acidity just began to develop in the stomach of the normal dog at the end of two hours. When only half of this amount of milk and cream, 60 cc., was given, high acidity was found usually within thirty minutes after feeding. In the duodenum high acidity was immediately reduced, when any of the foods we used were given by mouth. Milk, cream and fine particles of meat were found in the duodenum a few moments after such food was taken. High acidity did not develop in the duodenum after a meal except as the food passed in from the stomach. In the same way, 120 cc. of milk and cream every two hours prevented high acidity of the duodenal content except just at the end of the period, although half of this amount every two hours had little effect. With the administration of alkalis, gastric and duodenal acidity was reduced so that no highly acid values were obtained.

COMMENT

It is not appropriate to review here the large amount of work that has been done on the chemical reaction of the gastro-intestinal content. Attention should be called to the possibility that the variation in results obtained is due to error dependent on the method of securing the specimens. Although it is not safe to assume that any surgical procedure on the gastro-intestinal tract ever leaves it physiologically normal, in view of the fact that we were never able to demonstrate any variation from the normal in the general condition, motility of the gastro-intestinal tract, and so forth, in our animals, we feel justified in considering that our data represent true physiologic conditions. The difference in opinion in regard to the value of the various methods of estimating the acidity of the gastro-intestinal content need not concern us because we are interested only in relative values, and the method employed was fully adequate for our purpose.

A few possible sources of error should be mentioned. A most important factor to evaluate in the experiment was the change in activity of the gastro-intestinal tract associated with the training of the animal. It is undoubtedly true that the secretory and motor activity of the gastro-intestinal tract is influenced by innumerable factors. Our observation showed that the acidity of the gastric content of the trained dog, in a fasting condition, was considerably higher when the specimen was secured in the animal's cage than it was a few minutes later, when the animal was in the observation room, preliminary to the feeding. However, it should be clearly recognized that all observations were made under normal physiologic conditions.

A few of our observations are of sufficient importance to be emphasized. One of the most striking phenomena is the high acidity of the small amount of the gastric content in the fasting animal. Although the rapidity of the changes that occur at the pylorus, in the stomach and in the duodenum might be expected, they are of greater magnitude than would be anticipated. The changes in the reaction of the content of the small intestine are less than would be expected. The constancy of the reaction noted in this portion of the digestive tract is one of the most outstanding observations. Finally, it should be noted that the various foods did not produce such marked changes as previous work would indicate should be found, whereas administration of alkalis was effective in reducing the acidity.

SUMMARY

A method was developed for repeatedly securing, under normal physiologic conditions, specimens of the gastro-intestinal content at various levels of the tract. Estimation of the acidity in the fasting animal showed that the gastric juices are usually strongly acid, p_H 1.5 to 2.0, but may be at times almost neutral. The content of the duodenum, jejunum, ileum and colon is usually found to be alkaline, p_H 7.0 to 8.0, with the exception that the content of the duodenum may be found to be acid when highly acid values are found in the content of the stomach. Following a meal, the acidity of the content of the gastro-intestinal tract depends largely on the development of acid in the stomach. Short periods of high acidity of content are common in the duodenum and less common in the small intestine, the greater the distance from the pylorus. The usual reaction in the small intestine, after a meal, is close to neutrality, p_H 6.5 to 7.5. The content of the colon is usually slightly alkaline but may be slightly acid, especially following a meal rich in carbohydrate. Dietary measures may greatly alter the acidity of the content of the gastro-intestinal tract.

ABSTRACT OF DISCUSSION

Dr. A. C. Ivy, Chicago: The work that Dr. Mann and Dr. Bollman have done is obviously of fundamental importance not only from the standpoint of the effect of diet on the reaction of the intestinal contents as related to gastrojejunal ulcer, but also as it is related to gastro-intestinal disease in general and to the more fundamental phenomena of the mechanisms concerned in intestinal digestion and absorption. So far as the method is concerned, I can testify that the fistula method used by Dr. Mann is an excellent one and is the best method I know of for use in experimental animals. Dr. Mann told me of this method some three years ago and I have been using it in the laboratory in a number of different types of experiments, with excellent results. The animals remain in excellent condition over long periods of time. The only trouble that I have observed is the occasional occurrence of an intra-abdominal hernia. I should like to ask Dr. Mann to state his objection to the method of Dr. Lloyd Arnold, who used subcutaneous transplanted loops. As I recall Dr. Arnold's work, he made practically the same observations so far as acidity is concerned as were reported by Dr. Mann. It is true that in these transplanted loops there is some interference with motility, but as I have observed these transplanted loops, one can say there is no stasis. I should also like to ask Dr. Mann if in his studies he noticed any effect of hot weather on the reaction of the intestinal contents.

Dr. F. C. Mann, Rochester, Minn.: In answer to Dr. Ivy's question, there is no serious objection to Dr. Arnold's method. We have used it. However, we wish to obtain specimens in much larger numbers than is possible if the loop is entered repeatedly through the skin. For instance, in some of our experiments we have taken as many as 1,000 specimens of intestinal contents during the day, which, I think, would not be possible with any other method now in use. Also, unless a very large needle is used, difficulty will be encountered at times if the contents contain large particles.

Word Sparing Assertions.—An interesting side light is cast on the progress of medical enlightenment by the tenacious life of medical texts. Galen's writings remained standard for over a thousand years. One text of the seventeenth century is reported as having served its purpose for fifty years. Today a medical text is outworn in five years. If the reader ventures to look into original documents he will note the wordiness and deliberation of earlier writers as compared with the word-sparing assertions of the present. And with this change he will note that that prolonged rationalizing about dubious observations disappears with fact-gathering and experiment.—Oliver, W. W.: Stalkers of Pestilence, New York, Paul B. Hoeber, Inc., 1930.

INCIDENCE OF BROMIDE INTOXICATION AMONG PSYCHOTIC PATIENTS *

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For some time we have been impressed by the number of patients admitted to the Colorado Psychopathic Hospital showing symptoms of a frank delirium, or patients suffering from some major psychosis with evidence of toxic components. In some cases the source of the toxin could not be determined, but in others, either at the time of admission or after their recovery, we were able to obtain a history that they had taken large quantities of bromides or some other sedative.

Frequently in the literature attention has been called to the fact that patients develop a toxic delirium following the long continued or excessive dosage of bromides. A thorough review of the literature on this subject has recently been given by Dr. Oscar Diethelm.[1] One writer[2] reports bromide intoxication in an entire family consisting of five adults, two small children and one nursing child, when sodium bromide was accidentally substituted for sodium chloride in the household. The physical symptoms are mentioned in practically every standard textbook in therapeutics or pharmacology, and some mention the undesirable mental symptoms due to overdosage. We feel that most of them, however, give too limited space to the mental manifestations. Sollmann's[3] remarks are quite representative:

> Fairly large doses of bromides depress the psychic functions and the reflexes, leading to a condition of dulness and apathy, which conduces to sleep, particularly in nervous insomnia. . . . The effects occur only slowly and are correspondingly lasting. Continued administration of large doses results in bromide acne and other symptoms analogous to iodism. . . . Acute bromide poisoning is rare, occurring only after enormous doses.

Since March, 1928, a determination of the bromide content of the blood serum has been a part of the routine in the examination of all patients admitted to this hospital. This paper is based on a study of the first thousand consecutive cases so examined. The determinations were made with the Wuth[4] comparator. The test is simple and, although Dr. Diethelm[1] considers the Hauptman modification of the Walter method more accurate, we consider that the former method gives determinations accurate enough for clinical purposes. Dr. Diethelm's chief objection is that in the higher concentrations the standards on the Wuth comparator do not estimate differences of less than 100 mg. per hundred cubic centimeters. This we feel is unimportant because in our series nearly all patients with a blood bromide of 200 mg. per hundred cubic centimeters showed symptoms of intoxication, so that accurate determination between 200 and 300 mg. is of academic interest only, not of clinical importance.

Of the thousand cases examined, 7.7 per cent (table 1) showed bromide in the blood serum in a concentration of 75 mg. per hundred cubic centimeters and over. Of these, thirty-three, or 42.85 per cent (table 2), had received the bromide on a physician's prescription; fourteen, or 18 per cent, had taken "patent" medicines; and in thirty, or 38.95 per cent, the source of the drug remained undetermined, but undoubtedly these patients had also taken "patent" medicines, although most of them denied that they had taken medicine of any kind, even when they were confronted with the fact that their illness was due to drug intoxication. Of course, the drug intoxications produced by bromide prescribed by physicians could have been prevented had the physician been more familiar with the untoward mental symptoms of bromide overdosage, or if he had been willing to make a blood examination according to Wuth's simple method.

TABLE 1.—*Incidence of Bromide Intoxication*

Number of Patients Examined	Patients With Bromide in Serum	
	Number	Per Cent
1,000	77	7.7

TABLE 2.—*Sources of Bromides*

Source of Drug	Number of Patients	Per Cent of Patients with Bromide in Serum	Per Cent of Total Number Examined
Prescribed by physician..........	33	42.85	3.3
Undetermined....................	30	38.95	3.0
"Nervine"........................	6	7.79	0.6
Other "patent" medicine.........	8	10.39	0 8

In seventen, or 22.08 per cent, table 3, admission to the hospital was sought entirely on account of drug intoxication. Fortunately, most of these patients recovered before or shortly after leaving the hospital. However, two cases terminated fatally, and in these we feel that death was due to the indiscriminate use of bromides only. Both of these patients showed a bromide concentration of over 300 mg. per hundred cubic centimeters of blood. On admission, both had been under the care of a physician and had been taking bromide on prescription. Five other cases terminated fatally. One of these, a patient with dementia paralytica, showed only 75 mg. per hundred cubic centimeters, and we do not feel that the bromide contributed toward his death. The four remaining patients, one with cerebrospinal syphilis, one with senile dementia, and two with cerebral arteriosclerosis, died of cardiac decompensation. In these we feel that the bromide contributed toward their death in that the excitement due to delirium aggravated the decompensation.

TABLE 3.—*Pure Drug Intoxications*

	Number of Cases	Per Cent of Cases Showing Bromide	Per Cent of Total Cases Examined
Pure bromide intoxications......	10	12.99	1.0
Recovered....................	4	5.19	0.4
Improved.....................	4	5.19	0.4
Died..........................	2	2.59	0.2
Mixed drug intoxication.........	7	9.09	0.7
Recovered	5	6.49	0.5
Improved........	2	2.59	0.2
Died	0	0.00	0.0

Table 4 shows the incidence of bromide intoxication in the various psychotic conditions. Surprisingly enough, it was highest in those patients (pure bromide and mixed drug intoxication, seventeen cases) who showed no underlying psychotic condition after elimination of bromide. These patients consisted for the most part of that type of individual who is unable to make an adequate social adjustment and who resorts to alcohol and drugs as an escape from the situations in life which he considers intolerable. Of the patients with definite psychotic manifestations, the psychoneurotic ones ranked first. This is to be expected, as this type of patient resorts to drugs as a relief from symptoms. Eleven of these psychoneurotic patients had a bromide concentration of 125 or less. The other one had a concentration of less than 200 mg. None of these patients showed symptoms of intoxication. In the depressive group, which ranked second, there were three patients with a bromide concentration of 125 mg. or less who showed toxic symptoms. These three patients had passed middle age and there was some evidence of arteriosclerosis and general debility. In the two schizophrenic patients who showed toxic symptoms with a bromide concentration below 125, nothing could be demonstrated which would account for the delirium other than the bromide. This makes it appear likely that these patients had a special idiosyncrasy for bromide. It will be noted that in all of the organic group outside of cases of epilepsy there were a large number that showed toxic symptoms even with the lower concentrations. It might be suggested that since the organic mental symptoms and toxic symptoms are very much alike, some of these patients were considered toxic when in reality the symptoms were due to the underlying psychotic condition. To eliminate this factor we considered only those patients toxic who showed considerable improvement following elimination of the bromides.

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[1] Diethelm, Oscar: On Bromide Intoxication, J. Nerv. & Ment. Dis. **71**: 151 (Feb.) 1930.

[2] Grokla, R.: Klin. Wchnschr. **3**: 319, 1924.

[3] Sollmann, T. H.: A Manual of Pharmacology, p. 877.

[4] Wuth, Otto: Rational Bromide Treatment: New Methods for Its Control, J. A. M. A. **88**: 2013 (June 25) 1927.

TABLE 4.—*Distribution of Bromide in the Psychoses*

	With Toxic Symptoms				Without Toxic Symptoms					
	75-125 Mg. 100 Cc.	Over 125 and Less Than 200	200 and Less Than 300	300 and Over	75-125 Mg. 100 Cc.	Over 125 and Less Than 200	200 and Less Than 300	300 and Over	Total	Per Cent of 77 Cases Showing Bromide
Psychoneuroses	0	0	0	0	11	1	0	0	12	15.6
Manic-depressive depressed reaction	3	0	1	0	6	1	0	0	11	14.3
Pure bromide intoxication	1	0	2	7	0	0	0	0	10	12.9
Schizophrenia	2	2	1	0	4	0	0	0	9	11.7
Mixed drug intoxication	1	1	2	3	0	0	0	0	7	9.1
Cerebral arteriosclerosis	3	2	2	0	0	0	0	0	7	9.1
Epilepsy	1	1	0	0	3	0	1	0	6	7.8
Dementia paralytica	1	2	0	0	1	0	0	0	4	5.2
Senile psychoses	1	0	1	0	0	0	0	0	2	2.6
Post-traumatic psychoses	0	1	0	1	0	0	0	0	2	2.6
Manic-depressive manic reaction	0	0	0	0	0	1	0	0	1	1.3
Cerebrospinal syphilis	0	0	0	0	0	0	1	0	1	1.3
Brain tumor	1	0	0	0	0	0	0	0	1	1.3
Post encephalitis	0	0	0	0	1	0	0	0	1	1.3
Amyotrophic lateral sclerosis	0	0	0	0	1	0	0	0	1	1.3
Infection with delirium	1	0	0	0	0	0	0	0	1	1.3
Unclassified	0	0	0	0	1	0	0	0	1	1.3
Totals	15	9	9	11	28	3	2	0	77	100.0

In table 5 the patients were grouped according to age in decades. This shows that most of the patients below the age of 50 failed to show toxic symptoms in the concentration below 200 mg. per hundred cubic centimeters, while in the age group over 50 most of the patients showed evidence of intoxication, even in the low concentrations. In the entire group of seventy-seven patients only two with a bromide concentration of more than 200 mg. per hundred cubic centimeters showed no toxic symptoms, so that these two patients may be considered to have a special tolerance for bromide. For practical clinical purposes we think that *a concentration of 200 mg. per hundred cubic centimeters of blood should be considered toxic*, and when bromides are used the concentration should be kept below this point to avoid untoward effects. When the bromide concentration rises above 200 the patients usually begin to show some evidence of toxicity, usually first manifested by an increased restlessness with disorientation followed by paranoid trends, hallucinations, and apprehension. As the concentration increases to 200 or over, physical symptoms, such as *tremor of the hands, lip and tongue, with speech defect*, ataxia and finally stupor appear. Contrary to the accepted idea, we found acne to be comparatively rare. If the concentration goes much above 300 mg. we feel that the life of the patient is endangered.

TABLE 5.—*Relation of Age to Toxicity*

	With Toxic Symptoms				Without Toxic Symptoms			
Age	75-125 Mg. per 100 Cc.	Over 125 and Less Than 200	200 and Less Than 300	300 and Over	75-125 Mg. per 100 Cc.	Over 125 and Less Than 200	200 and Less Than 300	30 and Ov
Less than 20	0	0	0	0	1	0	0	0
20 to 30	3	2	0	1	9	0	1	0
30 to 40	3	3	2	2	8	0	0	0
40 to 50	2	1	3	4	7	1	0	0
50 to 60	2	3	1	3	3	2	1	0
60 to 70	5	0	2	1	0	0	0	0
70 and over	0	0	1	0	0	0	0	0
Totals	15	9	9	11	28	3	2	0

In these high concentrations the delirium may mask completely any underlying psychotic condition. We are presenting briefly three illustrative cases; one a pure bromide intoxication; the other two respectively an organic psychosis and a functional psychosis, both with superimposed bromide intoxication:

CASE 1.—A man, aged 47, married, a traveling salesman, was admitted with a complaint of confusion. He developed a genital sore, went to a hospital and was there four weeks. While there he was nervous, irritable and restless, and was given many sedatives, but his nervousness increased. On admission to the Psychopathic Hospital, he was semistuporous, disoriented, showed numerous vaguely formulated delusions, fears of venereal disease and dying, and reacted to auditory hallucinations. Physical examination revealed speech defect, irregular pupils, sordes, furred tongue, injected throat, irregular pulse, severe genital lesion—much excoriated, edematous and exquisitely painful—and normal reflexes. Laboratory examination revealed blood bromide 350 but otherwise was negative. The genital lesion was considered probably chancroidal with extensive superimposed infection. With eliminative and nutritive therapy and bland local applications, his physical and mental condition cleared rapidly. He was discharged much improved at the end of a month with a bromide of 125, to continue his convalescence at home.

This case illustrates one of pure bromide delirium. The patient entered the hospital semistuporous, considerably dehydrated and in a very weak condition. Elimination was first started by forcing fluids and colonic irrigations. Sodium chloride in a dosage of 15 grains (1 Gm.) three times a day speeds up the elimination considerably; but as the salt usually liberates the bromide from the tissues more rapidly than it can be eliminated by the kidney, we frequently see a rise in the blood bromide and an exacerbation of toxic symptoms for a few days. In this case we refrained from giving salt for about ten days until the patient had improved somewhat physically. Then he was given sodium chloride in the dosage mentioned and he showed rapid improvement.

Case 2.—A man, aged 34, single, was admitted to the hospital with a complaint that "he was raving, thought that someone was after him." He had had a chancre at 15, and had received four injections of arsphenamine. He had an operation for gastric disorder six weeks before admission, after which he became afraid of people and thought that the police were after him. On admission he was confused, very apprehensive and emotionally unstable, incoherent, had the delusion that he was to be killed and was paranoid against his brother. Physically, the principal observations were: speech defect, marked acneform eruption on face, left pupil larger than right and fixed to light, teeth in bad condition, pharynx injected, anterior cervical adenopathy, abdominal reflexes absent, and knee jerks hyperactive. Laboratory reports revealed: blood bromide, 150; cerebrospinal Wassermann reaction, 4 = 4; gold curve, 3335430000; protein, 70; cells, 23. He was inoculated with malaria and five days later developed a rise in temperature to 105 F., which persisted for thirty hours. The malaria was therefore terminated. At the end of this time his mental condition was unchanged and he was placed on eliminative and nutritive treatment. He improved rapidly, and was fairly clear mentally when discharged after two months in the hospital.

This case illustrates an organic condition accompanied by a bromide delirium. The diagnosis of dementia paralytica was made at another hospital and the patient was transferred here for treatment with malaria. As the bromides were eliminated the patient gradually improved and was discharged two months later to resume his former activities. He has been getting along well but is in the hospital at this time, one and one-half years later, as a voluntary patient for a course in malarial therapy. Wassermann examination of the blood and spinal fluid continues positive.

Case 3.—A woman, aged 33, married, a housewife, was admitted to the Colorado General Hospital with thirteen somatic complaints. Complete examination gave negative results and after psychiatric consultation she was transferred to the Psychopathic Hospital. She stated that she had been depressed for four months, had heard people calling her names, was confused and disoriented, and showed hallucinations, both auditory and visual, the latter consisting of animals and birds. As a result of her hallucinations she had disturbed periods with marked apprehension. She was depressed, self-condemnatory and thought she was being punished with cancer. Talk was retarded but relevant and coherent. Physically, the chief observations were marked loss of weight; facial acne; tonsils and pharyngeal walls inflamed; systolic murmur present but no cardiac decompensation; abdominal and knee reflexes hyperactive; unsustained ankle clonus. Laboratory reports showed: blood bromide, 100; other results negative. The patient was placed on an eliminative and nutritive treatment, whereupon the clouding of the sensorium disappeared and the condition became typical of an affective disorder of a depressed type. Under psychotherapy and an activity regimen, she improved both physically and mentally, and at the end of two months was discharged markedly improved to continue her convalescence at home with visits to the outpatient department.

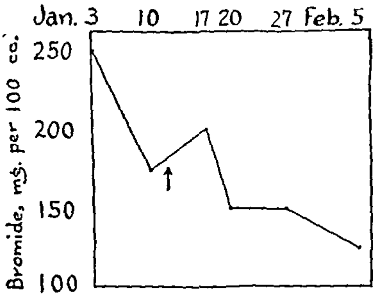

Chart 1.—Rate of elimination in an arteriosclerotic patient with bromide intoxication. Arrow indicates dosage of sodium chloride. On discharge, February 5, the condition of the patient was improved.

This patient was admitted to a general hospital with the depression almost completely masked by a toxic delirium. She was unable to tolerate bromides, perhaps on account of marked dehydration and cachexia, and developed a delirium with a bromide concentration of only 100 mg. per hundred cubic centimeters. After elimination of the bromides she presented a clinical picture of pure depression from which she had practically recovered at the time of discharge.

COMMENT

The treatment of bromide delirium is chiefly supportive and eliminative. The patients are given an abundant diet and large quantities of fluid. The oral administration of sodium chloride, about 15 grains (1 Gm.) three times a day, increases the bromide elimination. However, if patients show marked evidence of debility and dehydration and are in a weakened condition, we feel that it is inadvisable to give sodium chloride as it liberates the bromide from the tissues faster than it can be eliminated by the kidneys. As a consequence the blood bromide usually rises slightly and there is an exacerbation of the toxic symptoms which may prove fatal. If the patient has a blood bromide concentration of around 300 mg. per hundred cubic centimeters of blood, we feel that it is inadvisable to administer sodium chloride until we have had an opportunity to build up the patient physically to some extent.

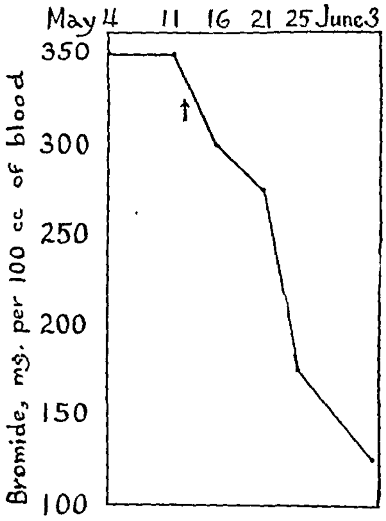

Chart 2.—Rate of elimination in an arteriosclerotic patient with bromide intoxication. Arrow indicates dosage of sodium chloride. On discharge, June 3, the patient had recovered.

Chart 1 shows the rate of elimination in a patient 59 years of age with marked evidence of arteriosclerosis. The original bromide concentration was 250 mg. per hundred cubic centimeters of blood. He was treated with elimination without administration of sodium chloride until the blood bromide concentration reached 175 mg. Sodium chloride was then given and there was a rise in blood bromide to 200 mg. per hundred cubic centimeters of blood followed by a gradual decrease to 125 mg., which was reached thirty-three days after admission.

Chart 2 shows the bromide elimination in a patient, aged 47, whose circulatory and excretory systems were in good condition. He was quite weak on admission and we refrained from giving salt for twelve days, after which he was given sodium chloride, 15 grains (1 Gm.) three times a day, without any rise in blood bromide. Obviously the kidneys were able to eliminate the bromides as fast as they were liberated from the tissues. This patient's bromide concentration in the blood dropped from 350 mg. per hundred cubic centimeters of blood to 125 mg. of blood in twenty-nine days. Comparing charts 1 and 2 it appears that bromide elimination is markedly hampered by a condition of general arteriosclerosis, and as a consequence patients showing evidence of arteriosclerosis have a decreased tolerance for bromide.

In 500 of these cases we also made bromide determinations of the cerebrospinal fluid. Bromide concentration of the spinal fluid ranged from 50 to 100 mg. per hundred cubic centimeters below that of blood. We do not feel that the information gained from the spinal fluid estimation is of enough clinical value to warrant its use. If, in addition to the fluid taken for Wassermann, chemical, and gold curve determination, fluid is also withdrawn for bromide estimation, this is enough to cause the incidence of post-lumbar puncture headaches to increase considerably.

We do not wish to leave the impression that we consider bromide harmful or even useless as a therapeutic agent. Any one who has had occasion to use bromide realizes that it can be an effective and valuable sedative. We do believe, however, that bromides are used much too indiscriminately and frequently produce harmful rather than beneficial effects. These harmful effects of bromide could be reduced to a minimum if physicians recognized the undesirable mental symptoms of bromide intoxication and were willing to use the simple method described by Wuth[4] for determining the bromide concentration in the blood.

CONCLUSIONS

1. Although bromide is a useful and effective sedative, it is far from harmless if used at all indiscriminately, as is shown by the fact that of 1,000 routine admissions to the Colorado Psychopathic Hospital 77 showed an appreciable amount of bromide in the blood serum. In 44 of these the mental symptoms were due to or increased by bromide.
2. Undesirable mental symptoms can be reduced to a minimum if the physician will be on the outlook for exacerbation of mental symptoms during bromide administration or if he is willing to make determinations of bromide concentration in the blood.
3. Special care should be exercised in the administration of bromide in cases of organic nervous disorders, particularly those in which the excretory or circulatory functions are impaired.

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THE TREATMENT OF CARCINOMA OF THE BLADDER BY SURGICAL DIATHERMY

A REPORT OF ONE HUNDRED AND NINE UNSELECTED CASES *

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In the evaluation of any therapeutic agent it is absolutely necessary that two conditions be fulfilled:

1. It should be the only agent used, since the use of more than one agent only serves to complicate the problem of determining to what extent each of the agents used was responsible for the recovery of the patient.
2. In order to determine accurately the value of surgical diathermy, it is necessary that all cases, "early as well as late," be treated with the particular agent under consideration. To reserve the early cases for resection and to use diathermy only in the far advanced and hopeless cases evidently is not giving this therapeutic agent an "even break."

For these two reasons the cases in this group were treated by means of only one agent; namely, surgical diathermy through the open bladder. In some of the early cases the temptation to perform a resection was exceedingly great, and in some of the far advanced cases the temptation to resort to radium instead of to diathermy was equally great; but had I yielded, this sort of uneven or unequal selection of cases would obviously not have determined the accurate value of this form of treatment. Therefore, in order to determine the exact value of surgical diathermy no selection of cases as operable or inoperable was made.

Table 1.—Age of Patients

Years	Number of Cases
30 to 40	3
40 to 50	13
50 to 60	32
60 to 70	42
70 to 80	17
80 to 90	1
Not stated	1
Total	109

Some of the patients who suffered from recurrences were operated on a second time; others refused to submit to a second operation and were treated by high voltage roentgen therapy or by radium.

It should be added that this paper is based on an unselected series of 109 cases of primary carcinoma of the bladder.

SEX

There were eighty-seven males and twenty-two females in this series. It is apparent from this particular group of cases that carcinoma of the bladder is practically four times as frequent in men as it is in women.

AGE

An analysis of the records shows that the youngest patient in this group was 35 years of age and the oldest, 82 years.

HEMATURIA

In 100 cases in this series, gross blood in the urine was noted by the patients. Gross bleeding as a symptom of great importance cannot be emphasized too often. A number of physicians still regard this symptom as of minor importance and administer some sort of local or internal treatment instead of bearing in mind that gross bleeding should always be interpreted as meaning the presence of a serious organic disease and that the first thing to do is to determine the origin of the bleeding and then the cause. Not only was hematuria a common and prominent symptom but in the largest number of cases (sixty-three) it was the first symptom noted by the patient.

Table 2.—*First Symptom Noted by Patient*

Symptom	Number of Cases
Hematuria	63
Frequency of urination	26
Nocturia	9
Burning	3
Urgency	2
Pain in	2
Acute retention of urine	1
Dysuria	1
Dribbling	1
Not stated	1
Total	109

URINALYSIS

A review of the urinary observations in this series showed the presence of pus in ninety-nine cases, albumin in eighty-five and blood in seventy-five cases.

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* From the Presbyterian Hospital.

* Read before the Section on Urology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

TYPES OF ORGANISMS

The following organisms were isolated in culture: *B. alcaligenes*, *B. coli*, *B. coli* and *B. proteus*, *B. coli* and *Staphylococcus albus*, *B. proteus*, *B. pyogenes*, *Eberthella* group, *Staphylococcus albus*, *Streptococcus hemolyticus* and *Streptococcus viridans.*

DIAGNOSIS

The preoperative diagnosis of carcinoma of the bladder was made from the cystoscopic examination and coupled with a complete history and physical examination, urinary examination and cystograms, and was verified by the removal of pieces of tissue at the time the bladder was opened. Cases presenting the picture of benign papillomas were subjected to fulguration through the cystoscope and hence are omitted from this report.

In some instances in which the element of doubt arose at the time of the cystoscopic examination, pieces were removed with the cystoscopic rongeur for a careful histologic study. Although it is possible to miss a malignant area in an apparently benign tumor, in the cases in which a malignant condition was suspected and in which the histologic report showed a carcinoma the cystoscopic diagnosis of malignant tumor was verified.

Table 3.—*Causes of Death in Group 1*

	Number of Cases
Pulmonary embolism	7
Pneumonia	4
Acute suppurative pyelonephritis	3
Anuria	3
Uremia	2
Acute dilatation of the heart	2
Acute dilatation of the heart and stomach	1
Carcinomatosis	2
Chronic myocarditis	1
Total	25

In borderline or doubtful cases, cystograms were made in order to determine the presence of infiltration of the bladder wall. The use of the cystogram has certain limits. In case the malignant condition is in the periphery of a papilloma with only slight involvement of the pedicle and no infiltration of the bladder wall, the cystogram would necessarily be normal.

RESULTS

For the purposes of analyzing the results obtained, the cases may be grouped under the following four headings:

Group 1, operative deaths.
Group 2, patients who died after they left the hospital.
Group 3, patients who may be considered as cured.
Group 4, recurrences.

OPERATIVE DEATHS

As previously stated in this paper, early as well as late cases were treated in the same way and no attempt was made to select the cases. In the operative deaths all patients are included who died in the hospital, irrespective of the time they lived between the operation and the time of death. Twenty-five patients, or 22.9 per cent, died in the hospital. The pulmonary causes of death head the list with seven cases of pulmonary embolism (28 per cent) and four cases of pneumonia (16 per cent). The pulmonary complications, therefore, were responsible for 44 per cent of the deaths. The urologic complications formed the second largest group, or eight cases (32 per cent), with anuria three cases, suppurative pyelonephritis three cases and uremia two cases. Two patients died within twenty-four hours after the operation. The hemoglobin was 20 and 22 per cent, respectively, and there was great distention of the bladder due to blood clots. Operation in each case was advised to stop the bleeding and to remove the clots. Another patient died suddenly thirty-six hours after the operation; an autopsy showed an acute dilation of both the stomach and the heart. In this group there were twenty-one males and four females and the average duration of life after operation was twenty-two days. Table 3 shows the cause of death in this group.

Table 4.—*Causes of Death in Group 2*

	Number of Cases
Carcinomatosis	26
Pneumonia	5
Suppurative pyelonephrosis	3
Uremia	3
Chronic myocarditis	2
Chronic nephritis	1
Cerebral hemorrhage	1
Edema of lungs	1
Toxemia	1
Tuberculous meningitis	1
Unknown	1
Total	45

PATIENTS WHO DIED AFTER THEY LEFT THE HOSPITAL

The cases in groups 1 and 2 all showed extensive carcinomatous disease of the bladder and the operation was more or less palliative in nature. In many cases there was extension of the carcinoma beyond the confines of the bladder with involvement of the surrounding structure.

In group 2 there were thirty-eight males and seven females. The longest duration of life was five and one-third years and the shortest duration was five months in two cases. The average duration of life between the operation and the date of death was eighteen and one-half months.

Table 5.—*Date of Last Cystoscopic Examination (23 Cases)*

Date	Years
Patient refused cystoscopy; no symptoms	14½
May 12, 1930	8
January 3, 1930	7
July 20, 1929	6
May 11, 1925	5
June 3, 1925	5
July 15, 1927	5
November 8, 1929	5
January 8, 1930	5
April 12, 1930	5
May 19, 1926	4
December 29, 1926	4
February 24, 1927	4
March 29, 1929	4
June 4, 1929	4
April 1, 1930	4
Cystoscopy not done; no symptoms	4
April 12, 1929	3
April 1, 1930	3
May 13, 1930	2½
September 17, 1929	2
October 28, 1929	2
December 10, 1929	1

Table 4 shows the causes of death after the patients left the hospital.

PATIENTS WHO MAY BE CONSIDERED AS CURED

In group 3 there are twenty-three patients who are living and well; that is, free from symptoms and with normal urine. All these patients were requested to return for cystoscopic examinations or, in case they lived at distant points, they were to have cystoscopic examinations made by competent urologists. Unfortunately, it was not always possible to convince some of them of the necessity of repeated cystoscopic examinations and particularly to convince them of the value of a recent cystoscopic examination; hence, in some cases reported here the last cystoscopic examination is not of recent date. The length of time in which the patients in this group remained free from recurrence as determined by the last cystoscopic examination is shown in table 5.

In this group there were seventeen males and six females. The average age was 58 years and the average duration of cure, so far as one may speak of cure, was 4.65 years.

PATIENTS LIVING BUT HAVING RECURRENCES

In group 4 there are twelve patients: seven males and five females. These patients had recurrences, as was proved by the cystoscopic examination in some instances. But when this procedure was not possible, it was assumed that recurrences were present in view of a return of symptoms such as painful and frequent urination, with blood, pus or bacteria in the urine, the history of loss of weight, the presence of a suprapubic fistula, and infiltration of the base of the bladder as determined by means of a rectal or vaginal examination.

One of the difficulties in treating carcinomas of the bladder arises from the fact that the tumors frequently involve or are located in the region of one or both ureters, and this fact probably exerts its influence on the mortality rate as well as on the end-results.

Table 6.—*Ureteral Involvement*

	Number of Cases	Per Cent
Involvement of right ureter	25	23.14
Involvement of left ureter	27	25.00
Involvement of both ureters	15	13.88
No involvement of ureters	41	37.90
Not stated	1	
Total	109	

A review of this series of cases bearing on the frequency of the ureteral involvement is presented in table 6.

As will be seen, there was involvement of the right ureter in twenty-five cases, or 23.14 per cent, of the left ureter in twenty-seven cases, or in 25 per cent, and of both ureters in fifteen cases, or 13.88 per cent. In forty-one cases, or 37.9 per cent, there was no involvement of the ureters. In one case the records did not give any information on this point.

Unforunately, four patients cannot be located; hence, instead of reporting end-results on 109 patients that have been operated on, I am able to report on only 105 cases.

SUMMARY

1. A group of 109 unselected cases of carcinoma of the bladder were studied.
2. All of the cases were treated with a single agent, namely, surgical diathermy.
3. In seventy cases, or practically two thirds of the cases seen, the condition was far advanced and the results from the standpoint of cure were highly unsatisfactory and the mortality rate was high.
4. In twenty-three cases seen, relatively early, without much involvement of the bladder wall, the results were unusually good.

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THE TREATMENT OF BLADDER CARCINOMA BY IRRADIATION AND DIATHERMY *

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In discussing the treatment of bladder cancer by irradiation and diathermy, it has seemed fitting to include in the series of cases on which this paper is based those cases which were treated by excision of the tumor. By including the latter, there is given a possible standard for the comparison of results obtained by the different methods of treatment.

Table 1.—*Comparison of Results*

	Number of Cases Treated	Postoperative Deaths		Deaths from Recurrence		Free from Growth 2 Years After Operation	
		No.	Per Cent	No.	Per Cent	No.	Per Cent
By excision	11	3	27	2	16	3	27
By electrocoagulation	15	1	7	4	27	4	27
By radium	24	7	29	6	25	7	29
Total	50	11	22	12	24	14	28

Fifty cases, in all of which operation was performed within the last ten years, have been studied. In forty-seven, the diagnosis of carcinoma was made by microscopic examination of tissue removed. In two cases, the piece removed was too small or too necrotic for a satisfactory pathologic diagnosis. In both these cases, however, the tumor was of the infiltrating type and was obviously malignant. In another case, while the piece removed was reported to be a papilloma, other tumors were broad-based and necrotic, and were characteristically papillary carcinoma:

Of the fifty cases, eleven were treated by excision, fifteen by electrocoagulation and twenty-four by the implantation of radium. Nine cases in the last group were treated by electrocoagulation of the tumor before the implantation of radium, but as the hope of cure was based on the effect of the radium rather than on that of electrocoagulation, they are included among the cases of irradiation.

Comparison of the results of treatment in these fifty cases is almost impossible. No two tumors are alike, and a basis for comparing one with another is hard to find. From a survey of these cases it appears that they fell in a general way into three classes, and that each of the classes was treated by the method which seemed best adapted for handling it. Infiltrating tumors of the dome or lateral wall were excised whenever possible; scattered superficial carcinomas were treated by electrocoagulation. As many of the patients were

Table 2.—*Results in Eleven Cases Treated by Excision*

Deaths due to operation:	
Six days after operation of renal insufficiency, one ureter having	1
been ligated	1
Two months a	1
Four days afte	
Deaths due to recurrence:	
Total cystectomy 8 months after operation of metastasis in spine	1
Total cystectomy 14 months after operation of recurrence locally	1
	3
Free from recurrence after 5 years	1
Free from recurrence after 1 year	1
Small recurrence 7 months after operation	1
Not traced	

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* Read before the Section on Urology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

operated on before it became customary for pathologists to indicate the grade of malignancy of the tumor, there is no basis for comparison from this point of view. Some of the most successful cases in each group have been rated as of high malignancy; it would appear from this limited evidence that the degree of malignancy is of no great prognostic value.

A comparison of the various methods of treatment may be made on the basis of operative mortality. It will be seen from table 1 that in this respect electrocoagulation is the safest method, as it has an operative mortality of but 7 per cent in contrast with one of 27 per cent for excision and one of 20 per cent for irradiation. Several factors enter into this. The cases selected for electrocoagulation usually showed a tumor of the superficial type, not obstructing the ureter. The patient was less liable to have pyelonephritis or to be profoundly toxic from absorption. Destruction of these superficial tumors causes less necrosis than that which necessarily attends destruction of infiltrating growths; when the latter are situated on the trigon, the absorption of toxins appears to be much greater, while the obstruction to ureteral drainage which results from edema about the ureteral orifice is almost certain to cause a pyelonephritis. Excision (table 2) entails a longer operation than either of the other methods, but, except in individuals whose circulatory system has little reserve, it seems to be well borne. One of my patients died of a failing heart and bronchopneumonia two months after operation; another died of cardiac failure four days after operation, and a third died of renal insufficiency six days after operation. In this case, one ureter was involved in the growth and was intentionally ligated.

Table 3.—*Results in Fifteen Cases Treated by Electrocoagulation*

Deaths due to operation:		
Four days after operation, from cardiac failure	1	
Deaths from recurrence:		
Death 5 months after operation	1	
Death 9 months after operation	1	
Death 1 year after operation	1	
Death 2½ years after operation	1	
Total	4	
Cases in which there were recurrences, which have been cleared up by intravesical electrocoagulation:		
(*a*) Cystoscopically well 14 months after operation	1	
Cystoscopically well 30 months after operation	1	
Cystoscopically well 48 months after operation	1	
(*b*) Symptomatically well 28 months after operation	1	
Total	4	
Cases without recurrence:		
19 months after operation	1	(by cystoscopy)
21 months after operation	1	(by cystoscopy)
36 months after operation	1	(symptomatically well)
Total	3	
Cases not traced	3	

The only postoperative death after electrocoagulation was due to cardiac failure (table 3). Of the seven deaths occurring after operation in the irradiated group, three were cardiac, two were due to renal infection, one was due to sepsis and one was due to general peritonitis following an unexplained perforation of the cecum.

Another basis for comparison of these methods is the matter of recurrence. In this respect excision shows the lowest percentage, the proportion of patients dying from recurrence after the use of this method being 18 per cent as against 27 per cent after electrocoagulation and 25 per cent after irradiation. Here again the figures must be analyzed carefully before they are accepted at their face value. The single, sessile growths which are suitable for excision are less likely to recur than are the papillary multiple growths which are usually selected for diathermic treatment. Excision of the latter, if it were possible, would probably be no more successful in preventing recurrences than is diathermy or radium. Many of the recurrences in the papillary group can be successfully treated through the cystoscope, provided the patient is seen often enough to catch them while they are still small and superficial.

In regard to the power of radium to destroy a cancer and to prevent recurrence, I admit I am still groping for light. My usual custom is to implant gold seeds of 1 millicurie each, 1 cm. apart, about the periphery *and through the center of the affected area. The dosage* varies from 1,320 to 3,800 millicurie hours. Apparently, the smaller doses were as effective as the larger. Of the six sessile cancers irradiated, four gave good results; one that was operated on nine years ago was a cancer of high malignancy (table 4). Another patient, with an epidermoid carcinoma grade 2, who was treated by electrocoagulation and then given 3,800 millicurie hours of radiation by means of gold seeds, died five weeks after operation from endocarditis. Autopsy showed the carcinoma still present about the site of the original tumor. The only interpretation which I can put on these observations is that cancers vary in their susceptibility to the action of radium. Whether this radiosensitiveness varies with the degree of malignancy cannot be deduced from this series. A high degree of malignancy does not contraindicate irradiation.

Table 4.—*Results in Twenty-Four Cases Treated by Implantation of Radium* *

Deaths due to operation:	
1 day after operation, from cardiac failure	1
6 days after operation, from cardiac failure	1
11 days after operation, from perforation of cecum and general peritonitis	1
(*a*) 3 weeks after operation, from left suppurative nephritis and cholelithiasis	1
(*b*) 4 weeks after	1
(*c*) 5 weeks after	1
Total	7
Deaths after recovery from operation:	
5 months after operation, from cancer	1
7 months after operation, from cancer	1
10 months after operation, from cancer	1
11 months after operation, from other causes	1
18 months after operation, from cancer	1
26 months after operation, from cancer	1
36 months after operation, from cancer	1
Total	7
Living and apparently well:	
16 months after operation (cystoscopy)	1
20 months after operation (cystoscopy)	1
2 years after operation (cystoscopy)	3
4 years after operation (cystoscopy) (Well clinically 7 years after operation)	1
5 years after operation (cystoscopy) (Cystoscopy in one of these; the other was reported well by L. M. D.)	2
6 years after operation (cystoscopy)	1
Total	9
Untraced (no record of death found)	1

* In nine of these cases the tumor was first electrocoagulated.

I am aware that the present trend in the use of radium is in favor of low, well screened doses applied over long periods. Even if this form of application does not increase the beneficial effects of radium, it is probable that it will reduce the tendency to employ the excessively large doses which many physicians have used in the past. The chronicity of a radium ulcer in any living tissue is remarkable, and in the bladder the macerating effect of the urine enables infecting bacteria to penetrate the slough and to keep up a cystitis of the most painful kind. Electrocoagulation is free from this fault, for the slough which it causes is thrown off in from four to six weeks, and a clean, well healed mucosa takes its place.

TABLE 5.—*Cases Treated With Radium*

Case	Age	Location	Pathologic Report	Type of Tumor	Radiation	Results
1	54	Trigon and left wall	Epidermoid cancer grade 2	Sessile, 4 cm. in diameter	*16 gold seeds 1.8 mc. each (3,860 mc. hours)	Death 5 weeks after operation from acute endocarditis; autopsy, considerable cancer present about site
2	73	Anterior wall down to trigon	Papillary cancer	Extensive superficial	11 glass seeds 1 mc. each put in trigon	No recurrence seen 16 months after operation; not traced after that
7	65	Trigon	Cancer, rapidly growing	Infiltrating	*13 gold seeds totaling 18 mc. (2,376 mc. hours)	Death 1 month after operation; pyelonephritis; no autopsy
8	70	Trigon	Papillary cancer, rapidly growing	Infiltrating	(1) 15 glass seeds 1 mc. each; (2) 4 steel needles 210 mc. × 8° totaling 3,680 mc. hours	Steady growth of tumor; death 10 months after operation
11	56	Trigon	Rapidly growing cancer	Infiltrating	*2 steel needles 20 + 33 mc. each for 10 hours = 530 mc. hours	Death 2 months after operation from sepsis and bronchopneumonia; no autopsy; rectovesical fistula
12	47	Trigon	Carcinoma, probably colloid	Necrotic, solid 4 cm. diameter, not pedunculated	*12 gold seeds 2 mc. each (3,168 mc. hours)	Nephrectomy necessary; no recurrence 20 months after operation; bladder healed 7 months after operation
13	70	Base and lateral walls	Cancer, rapidly growing	Small growths, slightly infiltrating	7 glass seeds 1 mc. each (924 mc. hours)	Recurrence, beginning 6 months after operation; later invaded perivesical tissues; death about 3 years after operation
14	58	Right ureteral area	Squamous cell cancer	Sessile growth, 3 × 1 cm.	10 glass seeds 1 mc. each (1,320 mc. hours)	Well by cystoscopy 4 years later; well clinically 7 years later
19	51	Base and bladder neck	Carcinoma, little differentiation	Sessile growth	*188 mc. in 4 steel needles for 3 hours; total = (564 mc. hours)	Death 7 months after operation
20	68	Left lateral wall	Papillary carcinoma	Superficial growth	*6 gold seeds 1.3 mc. each (1,030 mc. hours)	No recurrence 2 years after operation
21	60	Trigon, post urethram	Papilloma, a few mitotic figures	Scattered, superficial	14 glass seeds 1 mc. each (1,848 mc. hours)	Letter 5 years later says patient is well
23	52	Trigon	Epidermoid cancer	Infiltrating	10 gold seeds 1.7 mc. each; steel needles 152 mc. × 3° (2,700 mc. hours)	Death 5 months later
26	80	Bladder neck	Papillary carcinoma	Superficial	10 gold seeds 1 mc. each (1,320 mc. hours)	Death 1 day after operation of cardiac failure; no autopsy
28	75	Right ureteral area; root	Papillary carcinoma	Superficial	*9 gold seeds 1 mc. each (1,088 mc. hours)	Death 6 days after operation of cardiac failure; no autopsy
29	62	Left ureteral area	Papillary carcinoma	Superficial	*10 gold seeds 1.9 mc. each (2,400 mc. hours)	No evidence of recurrence 2 years after operation; bladder very irritable and still bleeds easily
30	50	Left lateral wall; right base	Papillary carcinoma	Superficial	*12 gold seeds 1.7 mc. each (2,692 mc. hours)	No recurrence; bladder clean 2 years later; control is poor
40	56	Trigon	Carcinoma	Tumor 3 cm. in diameter	10 glass seeds 1 mc. each (1,320 mc. hours)	Letter 6 years later says patient is well
41	55	Right lateral wall	Carcinoma	Papillary tumor 1 cm. in diameter	6 glass seeds 2 mc. each about periphery (1,584 mc. hours)	Death 11 days later from perforation of cecum, cause unknown; bladder showed no cancer
42	82	Left lateral wall	Carcinoma	Pedunculated tumor	12 glass seeds 1 mc. each (1,584 mc. hours)	Slough still present 9 months later; died 11 months after operation from other causes
43	62	Left lateral wall	No diagnosis; too necrotic	Sessile 1.5 cm. in diameter	10 glass seeds 1 mc. each (1,320 mc. hours)	Not traced; no record of death 7 years later
44	55	Right ureteral area	Carcinoma	Sessile 3 × 2 cm.	14 glass seeds 1 mc each; 4 needles 12.5 each for 20° (2,848 mc. hours)	Death 18 months later from cancer of bladder (possibly radium reaction)
45	65	Left lateral wall	Carcinoma	Superficial	10 glass seeds 1 mc. each (1,320 mc. hours)	Death 26 months later from cancer of bladder
46	70	Left lateral wall	Carcinoma	Infiltrating	15 glass seeds 1 mc. each; 4 needles 12.5 mc. each for ? hours (1,980+ mc. hours)	Death 3 weeks after operation; left suppurative nephritis; pericholecystitis and cholelithiasis; bladder cancer present
47	43	Right lateral wall	Squamous cell cancer of high malignancy	Sessile tumor 3 cm. diameter	11 glass seeds totaling 27 mc. (3,564 mc. hours)	Cyst 5 years later; no recurrence

* Diathermy used to destroy growth.

A comparison of the results based on the condition of the patient several years after operation shows that the percentage of successful cases is almost exactly the same, 27, 27 and 29, respectively, in all groups. Of the eleven cases of excision, three are free from recurrence after five years, one after one year; in one case there was a small recurrence seven months after operation. One was not traced. In the fifteen cases treated by electrocoagulation, there were four recurrences which were destroyed through the cystoscope. Cystoscopy in three of these cases showed the bladder to be free from growth fourteen months, thirty months and forty-eight months after operation. The fourth patient was reported as symptomatically well twenty-eight months after operation. The type of tumor usually treated by electrocoagulation, i. e., the superficial papillary type, has seemed to be more likely to recur after a considerable period than is the infiltrating but more localized type that was usually excised or irradiated. Two cases were proved by cystoscopy to have no recurrence nineteen and twenty-one months after operation; a third patient was symptomatically well thirty-six months after operation. Three were not traced.

Following irradiation, a cystoscopically negative bladder was found: sixteen months after operation in one; twenty months after operation in one; two years after operation in three; four years after operation in one (this patient was reported symptomatically well seven years after operation), and five years after operation in one. One patient was reported well by his own physician five years after operation and another one six years after operation. One was not traced, but no record of death was found seven years after operation.

SUMMARY

Cases of bladder carcinoma fall into two groups, the deeply infiltrating and the superficial papillary. Those in the first group, if they have not metastasized or extended beyond the bladder wall, may be excised or may be destroyed with radium with about a 25 per cent chance of a cure. If the growth is situated on the trigon or about a ureter, the chances of success are much less than if it is situated in the dome or lateral wall. For these deeply infiltrating growths, diathermy has not seemed particularly suitable; I have preferred the other methods.

Table 6.—*Cases Treated by Excision*

Case	Age	Location	Pathologic Report	Results
3	57	Dome	"Essentially malignant" papillary tumor	No recurrence in 5 years
6	62	Right lateral wall	Carcinoma, very little differentiation	No recurrence in 5 years
9	67	Anterior wall and roof	Rapidly growing cancer	Total cystectomy; death 14 months later from recurrence
10	63	Base above trigon	Epidermoid carcinoma; papillary type	Not traced
15	47	Generalized	Carcinoma	Total cystectomy; death from metastasis 8 months after operation
27	75	Right lateral wall and ureter	Epidermoid carcinoma grade 3	Died 6 days after operation of renal insufficiency (right ureter tied)
32	48	Left lateral wall and bladder neck	Carcinoma, rapidly growing	Left ureter transplanted; nephrectomy later; no recurrence in 3½ years
33	74	Dome	Carcinoma	Died 2 months after operation of bronchopneumonia
35	45	Dome	Squamous cell carcinoma	No recurrence in 1 year
49	67	Left lateral wall and trigon	Rapidly growing cancer	Death 4 days after operation; cardiac failure or embolus
50	64	Left ureter	Squamous cell carcinoma, papillary type	Small recurrence 7 months after operation

Cases of the second group, with tumors of the superficial, papillary type, are best treated by electrocoagulation. If the bases of the tumors are indurated, they may be irradiated by the implanting of one or two gold or platinum seeds. While the immediate mortality in this group is low, 7 per cent, the later mortality from recurrence is slightly higher than in the group treated by excision or irradiation. These cases should be watched with special care, for small recurrences are likely to spring up in any part of the bladder. Cystoscopic examination should be done at least every three months during the first year, and at least every six months for five years thereafter.

CONCLUSIONS

1. This study is based on fifty cases of carcinoma of the bladder, of which eleven were treated by excision, fifteen by electrocoagulation and twenty-four by irradiation.

Table 7.—*Cases Treated by Diathermy*

Case	Age	Location	Pathologic Report	Prognosis	Results
4	52	Trigon	Epidermoid carcinoma grade II	Extensive; hopeless	Death in 5 months
5	64	Close to right ureter	Papillary cancer rapidly growing; base not involved	4 cm. in diameter, pedunculated; good	Bladder healed 10 weeks after operation; no record of death 5 years later
16	56	Right side of trigon	Carcinoma	Fair	No recurrence after 1½ years; 2½ years after operation recurrence elsewhere in bladder; death
17	50	Left base close to ureter	Papillary carcinoma	Pedunculated growth 6 cm. diameter; good	No recurrence 19 months after operation
18	63	Dome and ureteral orifice	Papillary carcinoma	Two solid pedunculated growths on roof; fair	Recurrence in 10 months; sessile, infiltrating; undoubtedly died from recurrence
22	66	Trigon	Epidermoid carcinoma	Superficial scattered; fair	13 months later, recurrence on posterior edge of urethral orifice; destroyed through cystoscope; symptomatically well 13 months later
24	50	Trigon	Epidermoid carcinoma; papillary type	Extensive but superficial; fair	1 year after operation several small papillary recurrences, destroyed through cystoscope; bladder all right 2 months later
25	53	Right ureter, base and bladder neck	Papilloma; a few mitotic figures	One solid, pedunculated tumor, several buds; good	No recurrence 21 months after operation
31	60	Generalized	Papillary carcinoma	Many pedunculated tumors; fair	Recurrences (5 or 6 solid, pedunculated growths) 14 months after operation; destroyed through the cystoscope; bladder clean 2½ years after operation
34	60	Right base	Papillary carcinoma	Pedunculated tumor 2 cm. in diameter; good	Recurrence in treated area 5 months after operation; death from metastases 9 months after operation
36	40	Trigon	Papillary carcinoma, low malignancy	....	Not traced
37	72	Right ureteral region	Fragment too small for diagnosis; clinical malignancy	Appeared to invade wall; fair	Clinically well 3 years after operation; cystoscopy not done
38	52	Trigon and right lateral wall	Carcinoma, invading muscle	Fair	Not traced
39	80	Left ureteral region	Carcinoma	Good	Death 4 days after operation from cardiac failure; at autopsy, no cancer found
48	48	All over bladder	Papilloma; no mitotic figures seen (some of tumors necrotic)	Generalized, superficial; fair	A few small recurrences; bladder free from growth 4 years after operation

2. Operative mortality was lowest in the cases treated by diathermy, but deaths from recurrences were slightly greater in this group.

3. No one method is suitable for all cases. Deeply infiltrating carcinomas are best treated by excision or irradiation, depending on their location. Superficial papillary growths should be destroyed by electrocoagulation, and the bases, if indurated, should be irradiated.

4. With all of these methods, successful results were obtained in one out of every four (25 per cent).

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THE RADIUM TREATMENT OF CANCER OF THE BLADDER [*]

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The treatment of tumors of the bladder is still in a state of evolution. Surgery, diathermy and radium have been and still continue to be contestants for honors. The surgical removal necessitates no especial surgical equipment other than that found in every well appointed hospital. The radium treatment of malignant diseases is becoming more and more a problem that can best be dealt with in specially equipped hospitals. Radium itself is expensive and its proper use implies a certain amount of special training.

A comparison between the results with the use of radium and surgery can be made only when some common ground of classification can be reached. The greatest single advance in this direction is the grading by Broders of tumors into various classes of malignancy. I have for some time been so grading bladder tumors and have to date graded sixty-two tumors (reported elsewhere). My earlier cases were not graded. I have been unwilling to discard these cases and therefore, perhaps for the last time, have classified my cases under papillary and infiltrating cancers.

Table 1.—*Ninety-Eight Cases of Cancer of the Bladder Diagnosed on Pathologic Observations*

	Papilloma with Atypical Cells or Papillary Carcinoma		Infiltrating Carcinoma	
	Number	Per Cent	Number	Per Cent
Cases	51		47	
Controlled	27	52.9	19	43.1
Controlled over three years	22	43.0	14	29.7
One year	2	....	2	....
From 1 to 2 years	2	....	5	....
From 2 to 3 years	1	....	1	....
From 3 to 4 years	2	....	2	....
From 4 to 5 years	3	....	2	....
From 5 to 6 years	6	....	2	....
From 6 to 7 years	1	....	2	....
From 7 to 8 years	3	....	2	....
From 8 to 9 years	3	....	0	....
From 9 to 10 years	3	....	3	....
From 10 to 11 years	1	....	0	....
From 13 to 14 years	0	....	1	....
Not controlled	24	47.1	25	56.9
One year	11	....	12	....
From 1 to 2 years	9	....	7	....
From 2 to 3 years	1	....	2	....
From 3 to 4 years	1	....	1	....
From 4 to 5 years	1	....	1	....
From 5 to 6 years	1	....	1	....
From 7 to 8 years	1	....	0	....
From 9 to 10 years	0	....	1	....

If we who use radium could be in the position of the surgeon and could have the entire tumor for pathologic examination, our statistical problem would be easier. As a routine we attempt to get different portions of a tumor and particularly a portion of its base for examination. We have perhaps been too loath to dig deeply into the base of a tumor to get a specimen. We have thought that dissemination of tumor cells might result. So we have believed that the clinical diagnosis should have the last say. If a tumor was sloughy, that was classified as a carcinoma, even if the diagnosis came back papilloma. If a diagnosis was returned papillary carcinoma and an indurated base was felt at the time of open operation, or if radium-bearing needles when inserted into the tumor base met resistance and felt as though they were going through gristle, it was felt that the diagnosis of infiltrating carcinoma was justified. The statistical results go far toward proving this. There are some, however, who disagree with this point of view. For this reason I have given two tables in which radium end-results may be studied; table 1, in which the diagnosis has been made pathologically, and table 2, in which the pathologic diagnosis has been modified by the clinical diagnosis.

Table 2.—*One Hundred and Twenty-Seven Cases in Which Weight of Diagnosis was Clinical Rather Than Pathologic*

	Papillary Carcinoma*		Infiltrating Carcinoma	
	Number	Per Cent	Number	Per Cent
Cases	45		82	
Clinical and pathologic diagnoses agree	36		47	
Clinical and pathologic diagnoses disagree	9		35†	
Controlled	30	66.0	30	36.5
Controlled over three years	25	55.5	23	27.8
One year	1	....	3	....
From 1 to 2 years	3	....	2	....
From 2 to 3 years	0	....	2	....
From 3 to 4 years	2	....	4	....
From 4 to 5 years	6	....	3	....
From 5 to 6 years	3	....	3	....
From 6 to 7 years	3	....	4	....
From 7 to 8 years	2	....	3	....
From 8 to 9 years	2	....	2	....
From 9 to 10 years	5	....	3	....
From 10 to 11 years	1	....	0	....
From 12 to 13 years	1	....	0	....
From 13 to 14 years	0	....	1	....
Not controlled	15	33.0	52	63.5

* Papillomas with atypical cells are grouped under this heading.
† In nearly all these cases the pathologic diagnosis was papillary cancer.

In table 1 I have presented the end-results of ninety-eight cases of cancer of the bladder[1] with the diagnosis based solely on the pathologic observations.

In 127 cases of carcinoma of the bladder, the weight of diagnosis is given to the clinical rather than to the pathologic side[2] (table 2).

A comparison of these two tables shows 98 cases pathologically diagnosed and 127 cases in which the clinical diagnosis was given more weight than the pathologic.

The discrepancy between the numbers, twenty-nine cases, is that in which no pathologic diagnosis was made. In a number of these a sloughy part of a tumor which was removed showed no tumor under the microscope. A few were diagnosed by their failure to react to fulguration. In the largest part no specimen large enough for pathologic examination was obtained, but the diagnosis of carcinoma was made because the tumor was sloughy.

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[*] From the Urological Service, Memorial Hospital.

[*] Read before the Section on Urology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] I have reported only papillary and infiltrating cancers. Papillomas with atypical cells have been classified as papillary carcinomas. Tumors classified as papillomas have been excluded.

[2] In a good many of these cases the pathologic diagnosis was made from the papillary projecting portions of the tumors which were removed. Many of these tumors had started as papillary cancers and in the course of their growth invaded and infiltrated the bladder wall. In other words, they should have been classified as infiltrating cancers.

In the first table 43 per cent of the papillary carcinomas were controlled three years. Table 2 shows 55 per cent controlled three years. This discrepancy is undoubtedly caused by the inclusion in the second table of a number of borderline cases which lie between papilloma and papillary carcinoma.

There is no great difference in the three year controlled cases of infiltrating carcinoma, 29 per cent and 27 per cent, although it is interesting to note that those pathologically diagnosed give slightly better results.

The histories of the two cases of infiltrating cancer grade 3 in both of which the disease was controlled for nine years, is as follows:

CASE 1.—A man came to the hospital, Dec. 19, 1920, because of dysuria and urinary frequency followed by hematuria of three months' duration. Cystoscopy showed a necrotic tumor of the anterior bladder wall extending from the internal urethral orifice. Cystotomy was done, December 20. A flat, ulcerating tumor 4 by 3 cm. was found. This was implanted with twenty-one glass radium seeds, totaling 1,709 millicurie hours. Screened radium totaling 430 millicurie hours was packed against the tumor. The patient subsequently had much sloughing of the tumor with calcareous deposits. Dec. 21, 1922, a cystotomy was done to remove much soft calcareous material. No tumor was present. He recovered and was well, Feb. 6, 1930. The pathologic examination of the original tumor showed squamous infiltrating carcinoma, grade 3.

CASE 2.—A man, aged 33, who came to the hospital, May 13, 1920, had had slight dysuria two years before, then polyuria and, four months before, hematuria. Cystoscopy showed a flat ulcerating tumor of the right upper bladder wall. A cystotomy was done the day of admission. A tumor 2.5 by 2.5 cm. was found. A specimen was taken, and it was implanted with fifteen glass seeds of 0.3 mc. each totalling 594 mc. hours. He recovered. Oct. 21, 1920, he had a slight recurrence at the edge of the original tumor. This was implanted with glass seeds through the cystoscope. On many subsequent cystoscopies his bladder has been clean. He was well, Nov. 20, 1929. The pathologic examination of the original tumor showed infiltrating carcinoma, grade 3.

A comparison between the results of the implantation of radium and the operative removal of cancer of the bladder is difficult because surgery selects the cases that are operable and discards the rest.

At the Memorial Hospital irradiation has been given every patient with cancer of the bladder in whom the cancer was believed to be confined to the bladder, no matter how large the tumor was. Therefore, in this series are included many inoperable cases. In a fair percentage of cases the tumor occupied one third or more of the bladder. In these cases 28 per cent were tumors whose bases were 6 sq. cm. or less. In 72 per cent the bases were greater than 6 sq. cm.

In 127 tumors 81, or 63 per cent, touched or were adjacent to the trigon. Many of the patients would have required total cystectomy if operative removal had been contemplated. In nineteen, or 15 per cent, the location was on the base posterior to the trigon. In eighteen, or 14 per cent, the tumor was on the lateral walls and easily removable. In one, or 0.7 per cent, it was on the apex. In eight the site was not determined.

In the 63 per cent of tumors touching the trigon the operative mortality following the surgical removal of these tumors, if that had been possible, would have been between 10 and 20 per cent, and a fair number of these tumors could not have been removed surgically.

DIFFERENT FORMS OF RADIATION

Physicians have been able from the very start (1914) to control a good percentage of malignant tumors of the bladder with radium. They first used screened radium applied in a somewhat hit or miss manner; then partly screened and partly unscreened radiation (glass seeds) more accurately applied, but with much caustic beta radiation; finally, they used accurately applied gold seeds giving off no beta radiation.

Beta radiation certainly causes sloughy areas of the bladder, which only too often become covered with troublesome phosphatic deposits. On the other hand, some of the most malignant tumors I have ever cured were controlled solely by glass seeds.

It is an open question at present whether or not this caustic action of beta radiation is a factor in controlling cancer of the bladder.

The size of the dose of radium is an important factor. The reason many who use radium fail is that a very small dose is used. I have analyzed a good many such cases and have found almost without exception this to be the reason for failure.

One gold seed of 2 mc. to 1 sq. cm. of tumor should be used. I have put as many as forty such seeds in a single very large tumor. Considerable bladder irritability and some rectal irritation may follow this dosage (the latter if the seeds are near the rectum). The so-called radium burns may follow this administration.

I have always worried more about the malignant nature of a tumor of the bladder than about a radium burn. It has been calculated that between ten and fifteen erythema doses are necessary to control the radioresistant tumors. This accounts for the reason why high voltage roentgen therapy so often fails. It is difficult to get into the tumor by this method more than one and one-half erythema doses.

THE SUPRAPUBIC OPERATION

Finally, let me stress the decided difference between the operative mortality when a tumor is removed by surgery and when it is implanted by radium by the suprapubic route. In 109 consecutive personal cases of the suprapubic implantation of radium, 4 patients died in the hospital, an operative mortality of 3.6 per cent. One died of shock and hemorrhage, notwithstanding two blood transfusions; one of diabetic coma; one of uremia, and one of shock (a poor heart and old age contributed). A considerable number of these cases would have been classed as inoperable. Operative removal in the cases of this series which were operable would have been between 10 and 20 per cent.

In doing the suprapubic implantation, spinal anesthesia has been used. The bladder should not be mobilized. The abdominal wound should be thoroughly screened with gauze before the bladder is opened. Great care should be taken not to spill the bladder contents over the wound; a good exposure of the tumor is necessary; the Cameron light should be used for retraction and to illuminate the bladder; open wire retractors devised at the Memorial Hospital are useful for a good exposure of the tumor; the papillary portion of a tumor should be removed by some form of cautery; the radium implantation should be accurate; a small suprapubic drainage tube (from 18 to 22 F.) should be left in place for about a week or longer if the bladder is dirty or the radium dose is very large; the bladder is not sutured to the abdominal wall.

CONCLUSIONS

1. Tumors of the bladder should be classified according to their relative malignancy (Broders' method). In this way a comparison of results can be made.

2. The papilloma with atypical cells should be regarded as a malignant tumor and so treated.

3. If only the projecting part of a tumor is removed for pathologic examination, the clinical estimate of a tumor's malignancy should receive more weight than the pathologic.

4. In 127 cases, the results of radium implantation were: Of forty-five cases of papillary carcinoma, twenty-five cases, or 55.5 per cent, were controlled more than three years. Of eighty-two cases of infiltrating carcinoma, twenty-three cases, or *27.5 per cent,* were controlled more than three years.

5. The suprapubic implantation by radium has an operative mortality of between 3 and 4 per cent, while the operative removal has a mortality of between 10 and 20 per cent.

When one considers that all tumors of the bladder excepting those which had extended beyond the bladder were irradiated and included in these statistics, one gets a fairly *comprehensive idea of the decided superiority* of radium removal to operative removal.

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THE PATHOLOGY OF MALIGNANT BLADDER NEOPLASMS

WITH ESPECIAL REFERENCE TO THE GRADING OF EPITHELIOMAS *

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Since approximately 95 per cent of the malignant vesical lesions are epitheliomas,[1] any general consideration of the pathology of tumors of the bladder must include a study of epitheliomas and their associated papillomas.

There has been a divergence of opinion [2] regarding the relative benignancy and malignancy of the so-called papillomas of the bladder. One group [3] has maintained that these tumors were benign and the other [4] has stated that they were malignant. Certain characteristics of the primary growth, its gross and microscopic appearances and its subsequent actions deserve consideration as criteria in deciding the question as to the classification into which a neoplasm belongs.

As one approaches the dividing line between malignant and benign lesions, the differentiation between them frequently becomes increasingly difficult and, as every physician knows, certain neoplasms try his mental acumen to the limit to place them properly as malignant or as innocent tumors. In the final analysis the malignancy and benignancy of neoplasms are only relative terms and the merging of one group into the other may be almost imperceptible.

Some papillomas of the bladder may implant themselves in other parts of the organ, or in a suprapubic wound following an open operation, or they may recur locally.[5] Less commonly, papillomas of the bladder may show infiltration of the wall; the so-called infiltrating papilloma of the bladder. All these characteristics are features that may also be present in epitheliomas of the bladder.

Analysis of the microscopic appearance of the so-called papillomas of the bladder reveals usually a *frondlike growth of the epithelium of the bladder* with a vascular stroma forming the central portion of the stalk.

The epithelial cells composing the neoplasm are round or oval and usually tend to arrange themselves at right angles to the vascular stalk. These epithelial cells do not show mitotic figures, although irregularity of size of the nucleus is not uncommon. In my opinion, in agreement with Broders and others,[6] papillomas bear the same relationship to the bladder epitheliomas as grade 1 squamous cell epitheliomas of the lip, for example, bear to the more malignant grades of squamous cell epitheliomas of this organ.[7] On this account I feel that these bladder neoplasms should not be considered and treated as benign papillomas but as epitheliomas of a low degree of malignancy. These neoplasms have the characteristics of low grade epitheliomas; that is, they recur if incompletely removed, they rarely metastasize to adjacent lymph nodes, their growth is by direct extension, invasion or implantation and, finally, their cells have the characteristics of low grade epithelioma cells.

Broders,[7] in 1920, published his first paper on the grading of cancer, and at intervals since this time he has elaborated on his scheme and applied it to epitheliomas and carcinomas of different organs.[8] His *study of the urogenital epitheliomas was published* in 1922.[2] The basic principle of grading cancer according to this scheme of Broders is a consideration of the amount of differentiation which the cancer cells manifest.

Differentiation is the property which cells of a neoplasm possess which enable them to develop characters revealed by normal adult cells of the tissue from which the new growth arose. For example, a squamous cell epithelioma may, when it is *well differentiated,* reveal keratinization such as is seen in the normal skin. The cells of an epithelioma of the urinary bladder may reveal a microscopic appearance much like the cells of the normal bladder epithelium. This property of cells *to differentiate enables them to* "put the brakes on their growth," as Broders [8] has said. Cells that are undifferentiated, on the other hand, are rapidly growing and hyperchromatic with irregularly stained and frequently *prominent nuclei. Mitotic figures may be abundant* in this group of rapidly growing cells. Cancer cells may be so undifferentiated that they may have lost almost all the elements which identify them as related to any particular organ or tissue, as MacCarty [9] noted years ago.

In order to give his scheme of classification practical application, Broders divided his grading into four groups, designated grade 1, 2, 3 and 4. Tumors in grade 1 were the least malignant while those in grade 4 were the most malignant. Broders considered those epitheliomas which revealed from almost complete differentiation of the cells to differentiation in about 75 per cent of the cells as grade 1. Those tumors showing differentiation in from approximately 75 per cent of the cells to 50 per cent of the cells were considered as grade 2. The range of differentiation in grade 3 epitheliomas was from 50 per cent to 25 per cent, and in the grade 4 group the range of differentiation was from 25 per cent to practically no differentiation. The number of mitotic figures and the number of cells with large deeply stained nuclei play an important rôle in properly placing an epithelioma of the bladder in a certain grade. Keratinization, which is so commonly a guide in the grading of squamous cell epitheliomas of the lip, for example, is uncommonly seen in epitheliomas of the bladder and is consequently not a great aid in grading these tumors.

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* Read before the Section on Urology at the Eighty-First Annual Session of the American *Medical Association, Detroit, June 25, 1930.*

[1] Hunt, V. C.: The Surgical Treatment of Malignant Tumors of the Bladder, J. A. M. A. **91:** 1704-1709 (Dec. 1) 1928.

[2] Hunt (footnote 1). Geraghty, J. T., quoted by Aschner. Bumpus, H. C.: Modern Methods and Results of Treating Malignancy of the Bladder, J. A. M. A. **83:** 1139-1142 (Oct. 11) 1924; The Present Methods of Treating Tumors of the Bladder, J. Urol. **21:** 371-380 (March) 1929. Corbus, B. C.: The Diagnosis and Treatment of Bladder Tumors, Illinois M. J. **52:** 365-369 (Nov.) 1927. Von Rokitansky, Carl: A Manual of Pathological Anatomy, translated from German, London, Sydenham Society **2:** 229, 1849-1854. Broders, A. C.: Epithelioma of the Genito-Urinary Organs, Ann. Surg. **75:** 574-604 (May) 1922. Aschner, P. W.: The Pathology of Vesical Neoplasms: Its Evaluation in Diagnosis and Prognosis, J. A. M. A. **91:** 1697-1704 (Dec. 1) 1928. Crenshaw, quoted by Bumpus. Braasch, quoted by Bumpus. Bugbee, H. G.: Report of Cases of Malignant Growths of the Bladder, Treated by Resection and Radium, J. Urol. **10:** 159-173 (Aug.) 1923.

[3] Geraghty, Corbus and Aschner.

[4] Hunt, Bumpus, von Rokitansky, Broders, Crenshaw and Braasch.

[5] Aschner (footnote 2).

[6] Hunt, Bumpus, Crenshaw and Braasch.

[7] Broders, A. C.: Squamous Cell Epithelioma of the Lip, J. A. M. A. **74:** 656-664 (March 6) 1920.

[8] Broders, A. C.: Cancer's Self Control, M. J. & Rec. **121:** 133-135 (Feb. 4) 1925; The Grading of Cancer and Its Practical Application, Arch. Path. & Lab. Med. **2:** 376-381 (Sept.) 1926.

[9] MacCarty, W. C.: The Cytotologic Diagnosis of Neoplasms, J. A. M. A. **81:** 519-520 (Aug. 18) 1923.

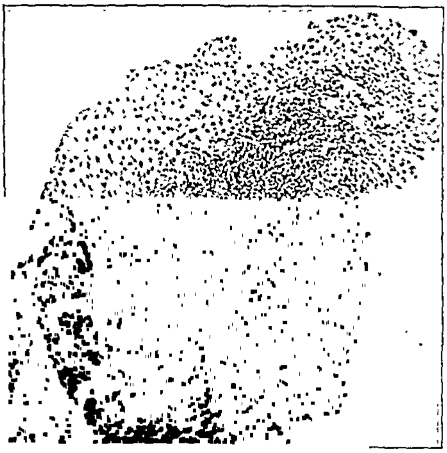

Fig. 1.—Grade 1 epithelioma: The epithelial cells covering the left side of the frond are well differentiated and apparently contain keratin, while those along the right border are less differentiated and reveal more irregularity of form, size and staining reactions; × 66.

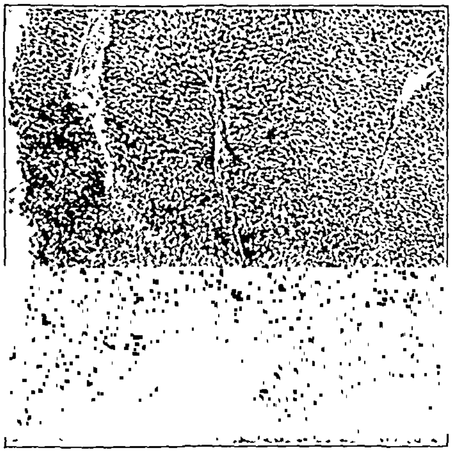

Fig. 2.—Grade 1 epithelioma, illustrating the usual features of this type of tumor, namely, round or oval, regular well differentiated cells; × 66.

Regarding tumors of the bladder, Broders[2] has said:

> A neoplasm can accomplish only what its cells can accomplish; if its cells are active, it is active. A neoplasm may be of papillary form and of a low degree of malignancy, or it may be papillary and of a high degree of malignancy. It may be flat or ulcerated and of a high degree of malignancy, or it may be flat or ulcerated and of a low degree of malignancy.

Hunt has noted an apparent tendency for the development of highly malignant epitheliomas of the bladder in the base of that organ, as opposed to the lateral wall or dome. In a series of 150 epitheliomas of the base, 64.6 per cent were grade 3 and 4 as opposed to 53.6 per cent of 214 epitheliomas of the lateral wall and dome. Hunt has furthermore found in a series of 480 graded epitheliomas of the bladder that 10 per cent were grade 1, 32 per cent grade 2, 35 per cent grade 3, and 23 per cent grade 4; 58 per cent were grades 3 and 4. In a series of 370 graded epitheliomas of the bladder irrespective of the size of the lesion, its situation or the magnitude of the operation, Hunt found that 65 per cent of the patients on whom a radical operation had been performed and in whom the lesions were graded 1 and 2 lived three or more years without a recurrence, in contrast to 35 per cent of the patients whose lesions were graded 3 and 4.

FOUR GRADES OF EPITHELIOMAS

Grade 1. These epitheliomas are most common in the lateral walls or dome of the bladder, although they may occur in any location.

Grossly they usually appear as soft papillary lesions, although there are exceptions. Small areas of ulceration may be present on their surface and incrustations of urinary salts are occasionally visible and palpable. When these tumors are present for a long time in the bladder, they may present a bulk that includes a good share of the bladder lumen. Multiple tumors are not uncommon.

The grade 1 epitheliomas reveal differentiation in approximately three fourths of their cells and undifferentiation in not more than one fourth of their cells.

In their microscopic appearance they are usually characterized by round or oval well differentiated epithelial cells several layers thick arranged at right angles to a vascular stalk, which usually makes up the center of the tumor. Keratinization is occasionally present in the epithelial cells (fig. 1). There are slight variations from the typical form but in general the grade 1 epitheliomas of the bladder conform fairly closely to this type (fig. 2).

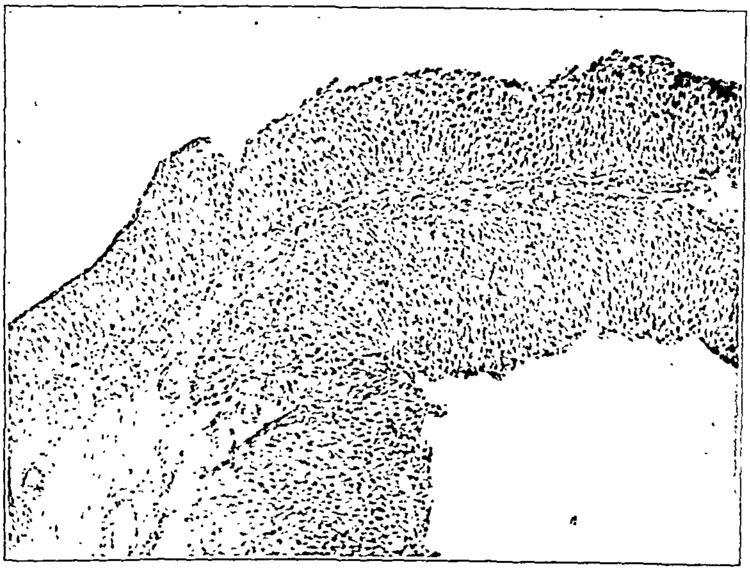

Fig. 3.—Grade 2 epithelioma: The cells composing this tumor are less differentiated than those in the grade 1 group, as their irregularity in size and staining reaction indicates; × 100.

Grade 2. This group of epitheliomas is commonly papillary and has a predilection for the lateral walls and dome of the vesica. Depending on their age and rate of growth, these tumors may form a large bulk of tissue, which may fill a portion of the bladder lumen.

The deeper structures of the bladder wall are usually not involved early in this disease by the neoplasm. Ulceration and incrustation may be present on the surface of the tumor.

The microscopic appearance of this tumor group, like that of grade 1, reveals a frondlike growth of epithelial cells with a vascular stroma or stalk. The differentiated cells compose from three fourths to one half of the tumors and the undifferentiated cells compose from one fourth to one half of the neoplasms. Since the epithelial cells are less differentiated, they present more variation in their size and nuclear staining qualities. Mitotic figures may occasionally be seen. There is sometimes an increase of the epithelial cellular elements and an apparent decrease of the stroma or stalk of the frond as compared to grade 1 epitheliomas, although this change is not of great importance (figs. 3 and 4).

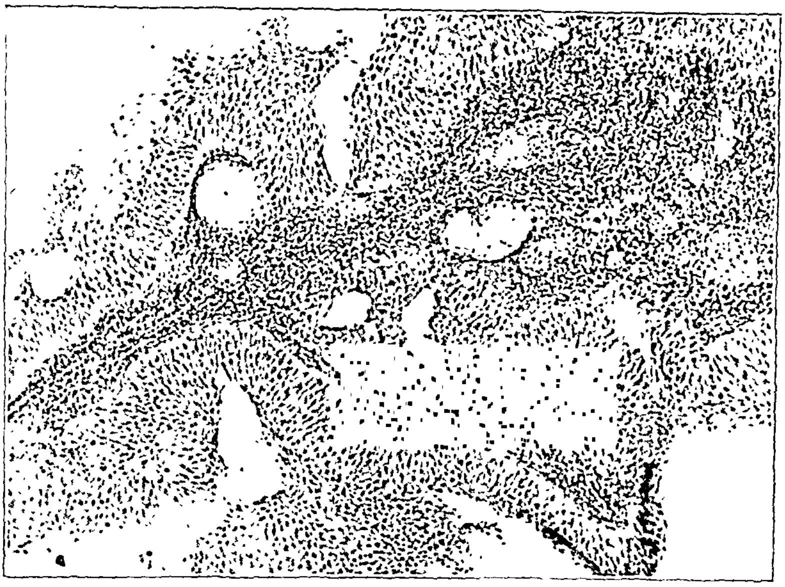

Fig. 4.—Grade 2 epithelioma, × 100, to be compared with figures 1 and 2.

Grade 3. Grossly, this group of epitheliomas is usually characterized by a flat infiltrating type of growth that may or may not show ulceration and necrosis. The base of the bladder is the most common location for this group of tumors.

The cells that make up the tumor are usually large hyperchromatic units, which frequently exhibit mitotic figures and a decreasing amount of differentiation. The differentiated cells compose from one half to one fourth of the new growth and the undifferentiated cells range from one half to three fourths of the tumor (fig. 5). If the tumor has a papillary character it usually is composed chiefly of epithelial cells in comparison to the amount of stroma so commonly seen in the epitheliomas of the bladder that are in the lesser degrees of malignancy (fig. 6). The infiltrating portions of the tumor frequently burrow deeply into the muscular coat of the bladder and perivesical tissues and lymphatics.

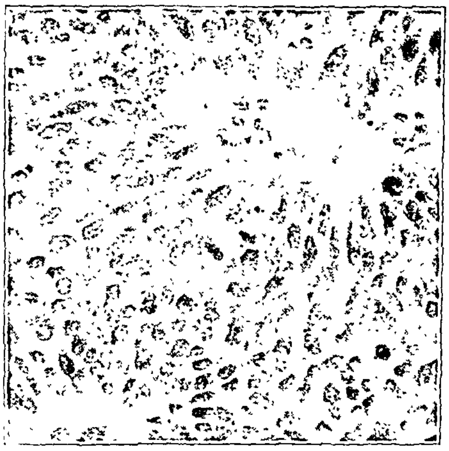

Fig. 5.—Grade 3 epithelioma: Near the center of this section a mitotic figure is visible; the cells composing this tumor are large, hyperchromatic and apparently rapidly growing and not greatly differentiated; × 300.

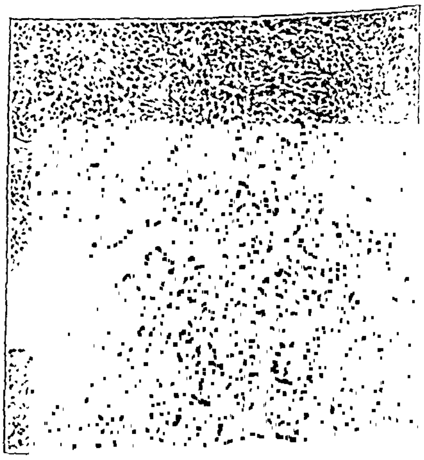

Fig. 6.—Grade 3 epithelioma: This neoplasm illustrates the increase of the epithelial elements over the stroma in the higher grades of malignancy; × 66.

Grade 4. These tumors, like those of the preceding group, are usually flat lesions which may or may not ulcerate. The most common gross character of these lesions is their marked invasive tendency illustrated in figure 7.

The cells making up their group are large, highly malignant cells usually with mitotic figures in abundance. Cell differentiation ranges from one fourth of the cells to practically none of the cells. The undifferentiated cells compose from three fourths of the tumor to almost the entire neoplasm. The stroma in the tumor itself is usually in little evidence. In the invading portions of the tumor, small islands of malignant cells may be found scattered among muscle and fibrous connective tissue bundles (figs. 7 and 8). Lymph vessels are many times invaded early and thus the extensive metastasis and the large number of inoperable tumors found in this group are accounted for.

IMPORTANCE OF BIOPSY OF BLADDER TUMORS

The removal of a specimen from tumors of the bladder for diagnosis has gained a new significance with the establishment of the virtue of the grading of epitheliomas of the bladder. A rational plan of treatment can be devised and executed as indicated by the grade of malignancy of a tumor, its location and extent, by means of the microscopic examination of a small specimen removed from a neoplasm of the bladder through a cystoscope. The objections which have been raised to the removal of a specimen of bladder lesions for diagnosis are many times based on a clinical opinion that the lesion was affected adversely by such a procedure; on the other hand, experimental evidence has accumulated in carefully controlled experiments which seem to indicate that biopsy had no influence on the rate of growth of cancer or on its metastasis in experimental animals.[10] Bumpus, in commenting on the removal of a specimen from a tumor of the bladder, said:

> Biopsy has not to my knowledge resulted in spreading the growth or producing metastasis, although such authorities as Thomas and Corbus warn against the practice. As parts of the neoplasm of the bladder break off from time to time as a result of the action of the musculature of the bladder, it is difficult to understand why the removal of pieces no larger than those frequently voided by the patient should result in a spread of the growth.

There are definite pitfalls into which the removal of specimens of tumors of the bladder may lead one. Most of these errors can be avoided with care and cooperation. The most troublesome experience is the failure to find malignant changes in a lesion which, from a clinical and cystoscopic standpoint, should be malignant. A single report of inflammatory tissue in such a case should not be considered as final. The urologist should remove another specimen, if necessary, in his efforts to "get the right piece," and the pathologist should leisurely study over and over again many sections from all the tissue removed. If multiple lesions are present in the bladder, specimens should be removed from each, for some of the lesions may be benign or inflammatory while others may be malignant.

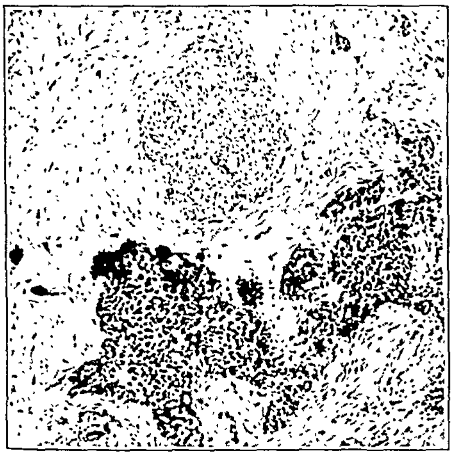

Fig. 7.—Grade 4 epithelioma cells invading the bladder wall; × 66.

Frater[11] recently found in studying a large number of bladder tumors that the grade of malignancy of a bladder tumor specimen removed cystoscopically could be relied on as an index of the grade of malignancy of the whole tumor because the malignancy of bladder epitheliomas did not vary greatly in different areas of the same tumor. That is, there was no important variation in the grade of malignancy between the surface and the base of the lesion. This observation is extremely valuable, particularly in regard to the worth of the removal of a specimen through a cystoscope as a diagnostic procedure. Frater furthermore found that epitheliomas of the bladder did not change, with few exceptions, in their grade of malignancy in specimens removed at different intervals from original tumors or their recurrences. The period over which these observations were made varied from a few months between different specimens to as long as approximately twelve and one-half years.

LESS COMMON BLADDER NEOPLASMS

An adenocarcinoma may develop in the urinary bladder. These cancers apparently develop from the von Brunn glands[5] and are composed of columnar cells usually arranged in acini with stroma surrounding them much as is seen in carcinoma of the prostate or breast. These bladder adenocarcinomas likewise lend themselves to the same grading as other cancers. The particular specimen illustrated happens to be a grade 2 adenocarcinoma. A knowledge of the possible development of these adenocarcinomas in the urinary bladder is of value because of the close resemblance of these neoplasms to prostatic carcinoma and the possibility of suspecting the prostate as the origin of the cancer rather than the urinary bladder.

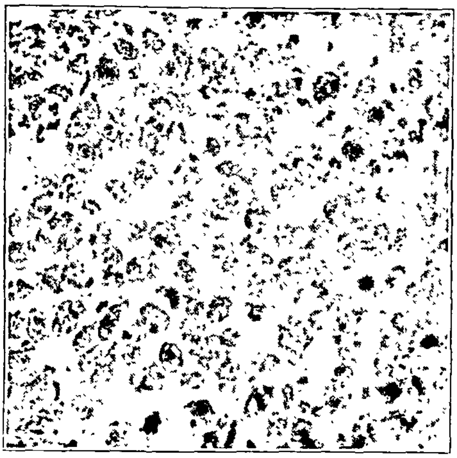

Fig. 8.—Grade 4 epithelioma: This tumor presents practically no differentiation of the cells; ×480.

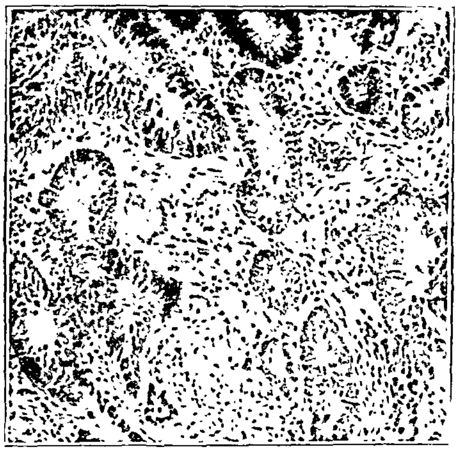

Fig. 9.—Adenocarcinoma, grade 2, rising in von Brunn's glands; × 100.

Sarcoma of the bladder reveals a few peculiar features that deserve especial mention. There is an unusual predilection of this neoplastic disease to occur most commonly between the ages of 51 and 60 years and 1 and 5 years.[12] This occurrence in the very young and so late in life is unusual. The points of origin of sarcoma of the bladder arranged according to the frequency of their occurrence are as follows: base, trigon, anterior bladder wall, lateral walls, vesical orifice, entire bladder, ureteral orifice, urachus and fundus. The types of bladder sarcoma that have been described include fibrosarcoma, lymphosarcoma, leiomyosarcoma and rhabdomyosarcoma, and they occur in about the order named.

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[10] Wood, F. C.: The Experimental Pathology of Cancer, J. A. M. A. 84: 4-8 (Jan. 3) 1925.

[11] Frater, Kenneth: Epithelial Neoplasms of the Bladder, Tr. Am. A. Genito-Urinary Surg. 21: 183-198, 1928.

[12] Caylor, H. D., and Walters, Waltman: Leiomyosarcoma of the Urinary Bladder with Report of Case, J. Urol. 24: 303 (Sept.) 1930.

SUMMARY

So-called papillomas of the urinary bladder should not be considered as benign lesions but as low grade papillary epitheliomas of the bladder, for they bear the same relationship to epitheliomas of the bladder as grade 1 squamous cell epitheliomas of the lip, for example, bear to the more malignant grades of epitheliomas in this organ. The grading of bladder epitheliomas, as devised by Broders, is described, illustrated and discussed. The importance of the removal of specimens from bladder epitheliomas as a diagnostic procedure is noted. The possibility of using diagnoses made from biopsy specimens as a basis for the development of a plan of treatment of bladder epitheliomas is emphasized and discussed. Some salient features of less common malignant lesions of the bladder are mentioned.

303 South Main Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KRETSCHMER, SMITH, BARRINGER AND CAYLOR

Dr. H. G. Bugbee, New York: That no one method of treating carcinoma of the bladder is satisfactory for all cases is self-evident by the variety of methods and technics now in use. Probably the best effort that has been made to standardize the pathology of bladder tumors is that of Broders. Few, however, I believe, will go as far as to make this classification or gradation an absolute rule for the application of a certain technic of operation in each case. The amplification of Broders' classification has been ably presented by Dr. Caylor, and his illustrative cases are well chosen. The profession is willing to take the ground that all bladder tumors are potentially malignant. Even the so-called benign papilloma, as he states, will recur; it grows by direct extension, invasion, or implantation, and its cells have the characteristics of low grade epithelioma cells. This type of tumor responds readily to fulguration and can be kept under control if thoroughly removed and the bladder kept under regular observation. From a practical standpoint, tumors of the bladder can be divided into three groups—papilloma, papillary carcinoma and infiltrating carcinoma—with a definite and accepted line of treatment in the first group only. As to just how much the treatment is influenced by the knowledge that a tumor is of a higher grade of malignancy is questionable. The knowledge of the grade of malignancy of the individual growth will probably help in giving a prognosis. If a tumor of the bladder does not respond at once to fulguration, I believe that the bladder should be opened and studied under sight and feel. What seems to be a papilloma of the bladder may be the apex of an infiltrating carcinoma with a broad intramural base. With the bladder open, when a carcinoma is exposed, effort is directed toward the elimination of the growth, and the methods at one's disposal consist of radical excision, diathermy, cautery, radium implantation or a combination of these procedures, plus the possible postoperative use of high voltage roentgen therapy. I have used each of these methods and various combinations, and I still believe that the technic to be employed depends on the condition found in the individual case. If the growth is in a position that renders excision possible, I prefer to excise the growth and to treat any doubtful areas of invasion by implantations of radon; other growths, infiltrating the base of the bladder and trigon or large areas of the bladder wall, rendering excision impossible, by cautery with implantation of radon seeds in the base; while other flat, infiltrating growths, or multiple growths, with radon seeds only.

Dr. Budd C. Corbus, Chicago: Dr. Barringer is not going to change his method of using radium in the treatment of tumors of the bladder because he has used it all this time, and his results warrant his going on with this method. Others are not going to change their procedure of treating tumors of the bladder with diathermy because they believe in its efficacy. I think the mistake lies in confusing the different methods. A physician should stick to one method, master the technic and hold on to it. When first one method is used and then another, one does not know which is responsible for the result, whether satisfactory or not. Ten years ago, or perhaps longer, we were asked to "stick to our last" and we are glad to do this. I was pleased to hear Dr. Kretschmer's paper, citing his favorable results in the treatment of tumor of the bladder. I also was glad to hear the paper on the classification of tumors of the bladder by Dr. Caylor. I think the point to appreciate in his paper is that the proper procedure is to destroy the growth at the first attack if possible. I believe that the term "electrocoagulation" should be used rather than fulguration. Fulguration means sparking and does not destroy the growth. The one important thing, whatever technic is used, is that one must be careful not to transplant tumor cells in removing the growth. The use of retractors, the tearing of tissue which leaves raw or cut surfaces where cancer cells can get in and find a foothold, must be avoided. I think great credit is due Dr. Beer in working out a careful technic in the removal of tumors of the bladder. His method of flooding the field with alcohol just before he closes the bladder, I heartily indorse.

Dr. William E. Stevens, San Francisco: I have been using electrocoagulation or surgical diathermy almost exclusively during the last six years, and I believe that it has much to offer in the treatment of tumors of the bladder. Several grade 3 cases are interesting. One patient with an infiltrating squamous cell carcinoma is in good health five years and five months after operation. Major Ash of the Army Medical Museum states that the tumor in this case shows more keratinization than any of the others in the registry and that the aforementioned period of nonrecurrence is remarkable. Another patient with a grade 3 tumor, infiltrating in type, died from other causes but free from recurrence one year after operation. A patient with a grade 3 papillary carcinoma is free from recurrence four years and three months after operation. Another with the same grade and type of carcinoma died following an operation for gallstones but free from recurrence of the bladder tumor one year and three months after operation.

Dr. John K. Ormond, Detroit: I have not had the wide experience that some of these other gentlemen have, but I have made it a practice to make sections of whatever tumors I see, and they have been classed according to the Broders classification in every instance. I have been surprised in some cases in which I have taken a specimen and then destroyed through the cystoscope by electrocoagulation to find that the growths were classed as Broders 4, and yet the patient remained well. I think that these cases fall into two classes, the pedunculated and the sessile, and that practically all the pedunculated tumors, unless they are very large, can be treated through the cystoscope. I have even treated several quite large growths of this type with good success. The diffuse, papillomatous tumors cannot, of course, be treated in this way, nor can the sessile tumors, but some rather large pedunculated growths can be successfully treated by fulguration. The point came up in connection with electrocoagulation that this procedure never causes any trouble even if the opening of the ureter is destroyed. I wish to ask Dr. Corbus whether the removal with the radio knife is comparable in that way. I have one patient for whom I removed a tumor with the radio knife who has a stricture of the orifice of the ureter.

Dr. Arthur L. Chute, Boston: I think that the older method of the operative removal of tumors of the bladder has not had quite a fair hearing. There is still so much that is not known about these tumors that I do not believe it is wise to give up entirely a method that has given a certain number of good results. I can think at once of three patients who have lived ten years or more and who are clinically well after the surgical removal of tumors of the bladder. These tumors were not classified according to the classification of Broders and their relative malignancy is not known, which is likewise the fact in many of the cases treated with radium or fulguration. One patient, a woman, aged 67, I operated on in 1913, removing a mass reported as a squamous cell carcinoma, surrounding one ureter and reimplanting the ureter. This patient was reported as well in 1929, sixteen years after operation. In the fall of 1917, I excised a mass on the right side of the bladder of a man, aged 64. It was macroscopically "carcinoma" according to a competent pathologist. This man was reported by one of his friends as well in 1930, thirteen years after operation. In February, 1918, I removed a considerable part of the left lateral wall of the bladder of a woman, aged 52, reimplanting her left ureter. This patient was reported as well within the past year. The mass was clinically an infiltrating one. I cannot find a definite microscopic report on it. These results I believe compare favorably with the best results obtained by irradiation or fulguration. I think that discrimination should be used in this work and radical removals should be done. Radium, as I understand it, acts satisfactorily only for about the distance of 1 cm. It seems to me that with surgical measures one can do better than that in many instances, and I cannot believe that the use of radium or fulguration about the ureter is good practice. I think surgery will give the best results in many cases, and that as a whole the use of radium and fulguration should be confined to cases in which it is believed that no radical operation can be done.

Dr. Waltman Walters, Rochester, Minn.: I agree with Dr. Chute that one must not overlook the fact that segmental resection of the bladder in cases of tumors involving the lateral walls and the dome completely removes the lesion if metastasis has not occurred. If the tumor involves the base of the bladder, however, radium implantation or electrocoagulation of the tumor or the actual cautery may be preferred; these may be used either singly or in conjunction. In the Mayo Clinic, the use of diathermy, in cases in which the tumor involves the base of the bladder, has been more satisfactory than the use of radium. In the classification of tumors of the bladder, the various degrees of malignancy should be taken into consideration. So also should the electrocoagulation in the destruction of a tumor be standardized. I think it is quite important that, in addition to the size of the tumor and its degree of malignancy, the size of the active electrode used in the electrocoagulation, the duration of treatment to the entire area of the tumor and the current used should all be recorded. There is no reason why a tumor cannot be completely destroyed if it is possible to estimate definitely the depth of the growth and approximately the depth and penetration of destruction of tissue by electrocoagulation and the degree of sloughing that will occur. The prognosis in these cases, I think, as has been so often repeated, is dependent on whether metastasis occurs and whether complete destruction or removal of the tumor takes place. As has been mentioned today, the fact that in a given case a malignant tumor of the bladder is graded 4 should not deter one from carrying on necessary surgical procedures.

Dr. Hermon C. Bumpus, Jr., Rochester, Minn.: During the discussion following this symposium on tumors of the bladder, there has been no reference to the patients with a malignant growth who live beyond the three or five year cure period without having received any form of treatment. In any large group of cases, from 2 to 5 per cent of patients will live this length of time no matter what form of treatment, or lack of treatment, they may have received. It is this group that forms the basis for such claims as have recently issued from San Francisco, and every physician must be on his guard to discount his results and not be deceived by the 3 to 5 per cent of patients who live more than from three to five years.

Dr. H. D. Caylor, Bluffton, Ind.: I think that a great deal of the fear in the classing of a so-called papilloma as an epithelioma is because it has been called a papilloma, which is actually a benign tumor; but if one analyzes these tumors, their gross and microscopic appearances, and the way they behave after an incomplete removal, I think that one will come to the opinion, whether agreeing with Broders or not, that a true benign papilloma of the bladder is very rare. Many of the growths that have been called papillomas were actually epitheliomas or whatever one wishes to name them. Dr. Barringer's remark about Dr. Ewing's using only three grades I think is a matter of opinion. I believe that four grades give a little better separation. If one wants to make it so simple one soon will have only two grades and then be back at the old position of just benign and malignant. The case that the doctor mentioned was apparently a relatively benign tumor and thus the patient lived a long time after fulguration. It must be remembered that most of the grade 4 tumors have the poorest blood supply of any of the different grades. There is little stroma, the blood supply does not keep up with the growth, and that perhaps is the reason the highly malignant tumors are so sensitive to radium, as Dr. Max Cutler and Dr. James Ewing have pointed out in regard to the highly malignant tumors that develop in the neck.

Dr. B. S. Barringer, New York: I wish to differ, very gently, from Dr. Caylor that one part of the tumor invariably shows the grade of all. I think it has been shown that from one site carcinoma can be obtained and from another site papilloma, and while tumors do run to form pretty well throughout, there are certain tumors which do not and one gets different pictures in different portions of the growth. I am sure Dr. Caylor did not mean that papilloma is very rare. Regarding operation, I think Dr. Keyes made an interesting statement some time ago, that a malignant operation should not be used for a malignant disease. I believe there is good sense in that. Dr. Corbus brought out a keen point that I have always believed. That is, that those who believe in diathermy should stick to that method. If one believes in surgery one should stick to that, and if one believes in radium therapy one should stick to that; and, finally, by comparing results with the bureau in Washington, one will get down to some idea of what is really the best method. Dr. Bumpus said two things. He mentioned a case of carcinoma of the bladder which had gone five years. I can better that a good deal. One patient has gone twelve or fifteen years with absolutely no treatment. She developed, after I saw her, a vesicovaginal fistula and I transplanted the ureter and she is alive now. I wish, however, to call the attention of Dr. Bumpus to the fact that these cases are very rare. Most of them go on to a fatal termination within a short time.

Dr. Budd C. Corbus, Chicago: Answering Dr. Ormond, I believe that the tumor situated near the ureter is more important than the ureter itself. It is burned "back" when necessary. If necessary, a ureteral meatotomy is done after the tumor is destroyed. I have a small silver ureteral catheter, about 2 inches long, and when I can put this into the ureter without too much traumatism I find that it keeps the ureter open and gives adequate kidney drainage during the time of the healing of the coagulated tissue. It is later removed by means of a small string attached to one end. I have found in several cases that the tumor extends up around the ureter for some distance.

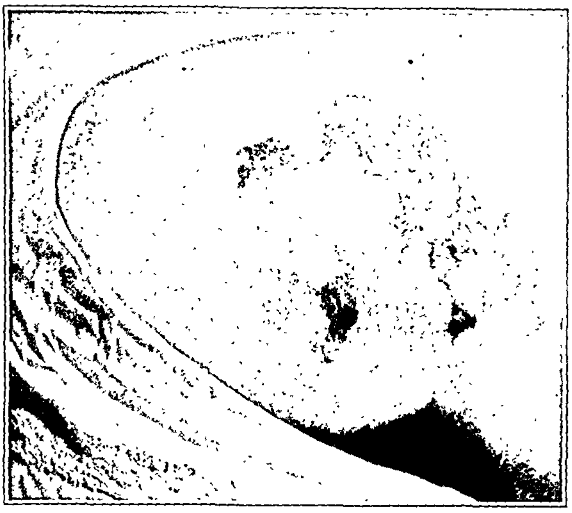
Recognizing Possibilities of Error.—Refinement in the technic of analyzing phenomena thus constitutes the sole difference between the scientific and the popular method of drawing conclusions. In adjusting any mechanical device, one may be exercising a very common kind of sense. But it is a sense which differs from that exhibited by the scientific investigator, only in so far as the facts examined by the investigator are the more complicated and can be approached only after extended preparation. The man who builds a concrete sidewalk in his yard learns by experience and experiment, and by thinking things out as he goes. The investigator who is trying to advance our knowledge regarding the chemistry of cement does essentially the same thing. Only he begins far ahead of the untrained man; and, having a broader knowledge, he recognizes possibilities of error that the other does not comprehend. The conclusion that we reach is, therefore, that there is nothing really unique in science or in the method of science. Scientists are not wizards but men who apply to natural phenomena the methods of analysis used by logical minds in the affairs of daily life.—Saidla, L. E., and Gibbs, W. E.: Science and the Scientific Mind, New York, McGraw-Hill Book Company, Inc., 1930.

Clinical Notes, Suggestions and New Instruments

EMBOLIA CUTIS MEDICAMENTOSA: LOCAL ARTERIAL EMBOLISM FOLLOWING THE INJECTION OF MERCURIC SALICYLATE IN OIL *

E. A. Skolnik, M.D., and Ruben Nomland, M.D., Chicago

The unintentional injection of oily suspensions of mercury or bismuth into an artery of the buttock is a very rare accident in the treatment of syphilis. Gammel [1] has reviewed the literature and reported five cases in his two papers on this subject. In the less severe cases there was only immediate severe pain, followed by induration of the buttock and bluish, reticulated mottling of the overlying skin. These conditions disappeared in about two weeks. In the severe cases there were extreme immediate pain, high temperature, constitutional symptoms, local induration, persistent soreness and reticulated, bluish discoloration of the skin. Occasionally sloughs formed, leaving ulcers. The external genitalia, bladder, vagina and rectum were sometimes involved. Nerve injury with paralysis of some of the leg muscles has occurred. In the excised tissue Gammel [2] demonstrated the heavy metal in the lumens of the cutaneous arterioles. He thought that the incidence of such accidents was about 1 in 15,000 intragluteal injections and that they could be avoided by proper technical precautions.



Appearance of buttock two weeks after injection of mercury in oil.

REPORT OF CASE

The following case is the only one known to have occurred at the Central Free Dispensary, where thousands of intramuscular injections are given yearly. The history is as follows:

A woman, aged 27, had received without mishap many intramuscular injections of a soluble bismuth compound during a year of intensive antisyphilitic treatment. The accident followed the first injection of 0.06 Gm. of mercuric salicylate suspended in 0.67 cc. of olive oil, given into the right buttock according to the usual technic. She stated that there was more pain than usual on the insertion of the needle and, immediately after the injection, a feeling as if her buttock had been scalded. However, she did not complain but went home. A half hour after the injection she said that the area looked and felt like a severe bruise. That night she felt chilly and had a "feverish" headache and backache. She remained in bed at home for a week with milder constitutional symptoms. When she returned for observation two weeks after the injection the buttock was still tender and painful. In addition to doughy infiltration of much of the buttock, there was an area 8 by 10 cm. of purplish, reticulated mottling of the skin as shown in the illustration. In the center of the discolored area there was a superficial, moist erosion, as though bullae had been present. A week later a slough had separated from the center leaving a shallow ulcer 2.5 cm. across. By this time most of the deep infiltration had disappeared. One month after the injection the ulcer was almost healed, but a reticulated, brown pattern of the lesion remained. There was no pain and scarcely any induration of the affected buttock.

SUMMARY

This case illustrates a rare, but classic, accident in intramuscular therapy, occurring when heavy metals suspended in oil are inadvertently given into a deep artery supplying the skin.

55 East Washington Street—25 East Washington Street.

SURGERY IN MOVING PICTURES *

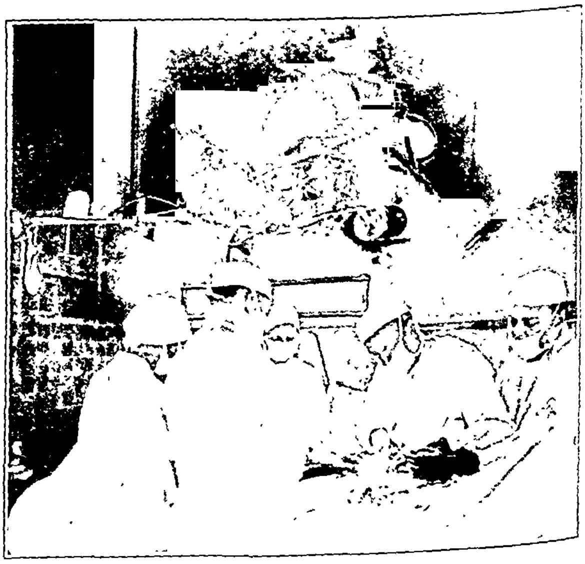
Richard B. Stout, M.D., Madison, Wis.

Surgical practice lends itself admirably to the taking of motion pictures to perpetuate the transient phases of operative technic. Unfortunately, many difficulties confront a camera man who may want to photograph an operation in progress.

First of all, the surgeons cannot be inconvenienced by the intrusion of photographic equipment. In any case, the camera man is kept so far away from the sterile field that his film usually records more elbows and backs than it does the operation.

To record what the surgeon sees and does, the camera is best placed somewhere above the patient but far enough away not to interfere with the surgeons or nurses. The accompanying illustration shows how a 16 mm. Filmo camera was attached to a regular Operay light, which may be conceded as being one of the most logical positions for it. To do this, an iron ring was fastened between the main lens of the lamp and frame. This ring was made with a projecting piece to which the Filmo camera was fastened.

As the camera was then out of reach, a remote control was necessary and a solenoid electromagnet was designed which could be fastened over the release button on the camera and controlled by a foot switch. This solenoid was made by winding a small brass tube in which a small soft iron armature was attached to the upper end by a spring. When the switch is pressed the armature is pulled down, operating the starting button and permitting the taking of single frames or longer exposures at will. The surgeon or his assistant may thus be



Making Kodacolor movies of an operation.

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* From the Central Free Dispensary of Rush Medical College.

[1] Gammel, J. A.: [illegible] Unusual Complication Following Intramuscular [illegible] J. A. M. A. 88:998 (March 26) 1927; Local [illegible] muscular Administration of Salts of the Heavy Metals: Report of Two Cases of Embolia [illegible] Arch. Dermat. & Syph. 18:210 (Aug.) 1928 [illegible]

[illegible] 1, second reference).

* From the Section of Surgery of the Jackson Clinic.

the camera man and take only the important steps of the operation.

As the camera spring must be rewound if more than 25 feet of film is to be exposed, the rewind device, shown in the illustration, was made. The shaft of a 4 inch V-grooved pulley was fitted to the winding key socket of the camera. Several turns of fine piano wire were taken around it and passed through a one-fourth inch flexible copper tube to a smaller wheel with a crank attached. A nurse may thus rewind the camera as necessary, from a distance.

Satisfactory black and white pictures may be taken at F 4.5 by the illumination of the ordinary operating light, but for Kodacolor pictures a considerable amount of auxiliary illumination is necessary. Eight small automobile spotlights were fitted with double filament 32-32 candle power 8 volt bulbs, all of which were connected in series and attached to the operating light by the arms shown. The series of auxiliary lights were then connected in multiple with the electromagnetic camera release and both controlled by the foot switch and operated on the 110 volt lighting current. Heat generated by the lights during the thirty to sixty second "shots" ordinarily taken is not objectionable. The low voltage lamps used generate far less heat than the regular type of lamp, so that water cooling is unnecessary.

The light emitted by incandescant lights has more red and yellow in its composition than daylight, so allowance has to be made accordingly when Kodacolor pictures are to be taken. This can be taken care of by reversing the ratio diaphragm that comes with the film so that the part that ordinarily masks the blue now masks the red portion of the Kodacolor filter. For our particular work, a little better color rendition was obtained by removing the ratio diaphragm entirely and covering a portion of the red side of the filter with a piece of black lantern slide binder.

A REAGENT FOR DEMONSTRATING FUNGI IN SKIN SCRAPINGS AND HAIR *

Theodore Cornbleet, M.D., Chicago

Fungous disorders of the skin are being seen in such increasing numbers that they are becoming a problem of public health. The first means of prevention is the quick recognition of existing cases. This can most rapidly and conveniently be done by knowing the distinct clinical forms which the different mycoses assume. While, to the expert, clinical means are generally sufficient, he too often needs the aid of the laboratory to be certain of his diagnosis. It is natural, therefore, that improved methods for demonstrating fungi in keratotic structures should be desirable.

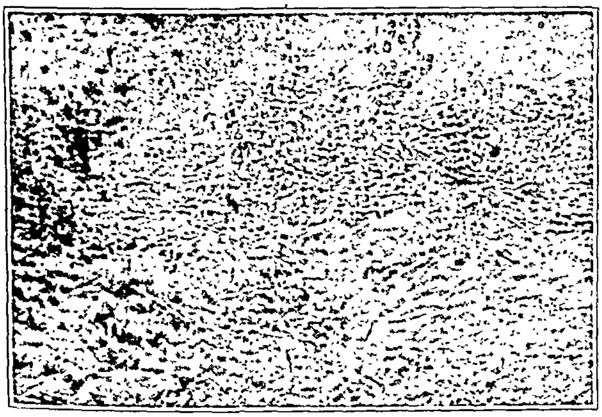
Fig. 1.—Fungi in scalp hair, 25 per cent solution of sodium hydroxide.

There are two laboratory procedures in general use by physicians for examining the skin and hair for fungi. The first is the cultural means and the second is the direct method of maceration with fixed alkalis. The cultural method does not lend itself to routine use by the physician because it requires too much time, material and special information. In the direct method most generally used today, the material to be studied is placed in several drops of a 10 to 40 per cent aqueous solution of potassium hydroxide on a glass slide and overlaid with a cover slip. After an interval to allow the keratin to dissolve, the preparation is examined through a microscope. When a solution of potassium hydroxide is freshly prepared and warm, it is generally satisfactory. Even then, however, it may lead to confusion by forming soaps with the oil that is present in the material under examination. These soaps may sometimes simulate fungous structures. Of course, this oil may be removed, but its complete removal offers some difficulty, as will be brought out hereafter. Another objection to solution of potassium hydroxide is that in the weaker concentrations it absorbs atmospheric carbon dioxide to form the relatively insoluble carbonate. Thus a relatively obscuring medium, which cuts down visibility, is employed. A third and serious objection to this reagent is the difficulty with which the hyphous and mycelial elements are seen through it. It is generally easy to see the spores, but in many cases the thallus or vegetative portion of the fungi is difficult to demonstrate. The latter structures usually show up either poorly or not at all, and it is the presence of just these vegetative portions of the organism that is usually relied on for making the diagnosis, since spores may be so easily confounded with artefacts. It would seem, therefore, that in spite of the ease with which fixed alkali reagents are prepared there still is room for other more efficient reagents, even though they are more difficult to prepare.

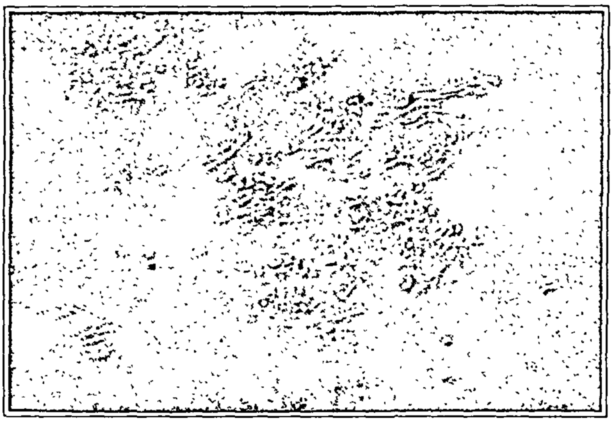
Fig. 2.—Fungi in scalp hair, sodium sulphide reagent.

There are several substances which seem to be as good as or better than an aqueous solution of potassium hydroxide. They either dissolve the keratin or cause its refractive index to contrast well with the highly refractile fungi. Some of these are trichloracetic acid, acetic acid and boiling glycerin. Perhaps the best keratin solvents are found in the sulphides of the fixed alkalis and alkaline earths. The reagent that is presently to be described includes the sodium sulphide.

FORMULA AND PREPARATION

Several drops of water are sufficient to dissolve a relatively large quantity of sodium sulphide crystals. Equal parts of this solution and 95 per cent alcohol are added to each other. A cloudy precipitate forms at once. Then, by adding a sufficient quantity of distilled water drop by drop, this precipitate redissolves and remains in solution. This completes the preparation. The reagent should be kept in a glass-stoppered bottle that is coated with paraffin at its neck. The alcohol content of the formula will remain relatively more constant if care is taken to close the bottle when it is not in use.

The alcohol serves a useful purpose in not only removing the oil at the surface of the keratin but also that which is between the scale layers. It does this because it is miscible with water. In this respect it is superior to ether, which is prevented from penetrating the interior by the water in the keratin. The alcohol also helps to attain just that refractive index which gives the optimum visibility of organism structure and transparency of

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* From the Department of Dermatology, University of Illinois College of Medicine, service of Dr. F. E. Senear.

medium. Since the preparation is an unstained one, recognition of form depends on the difference in the refractive index between the examining medium and the organisms suspended in it. A medium that has the same refractive index as the organisms gives the greatest transparency but poor visibility, while a medium that has a lower refractive index gives a greater visibility of structure but diminished transparency. In making up the reagent, these two factors were considered, so as to get the optimum point for both. The index of refraction of keratin dissolved in a 20 per cent aqueous solution of potassium hydroxide is 1.363, while the index of a similar solution of keratin in the sodium sulphide reagent has an index of 1.382. The sodium sulphide reagent dissolves the keratin to produce a clear solution.

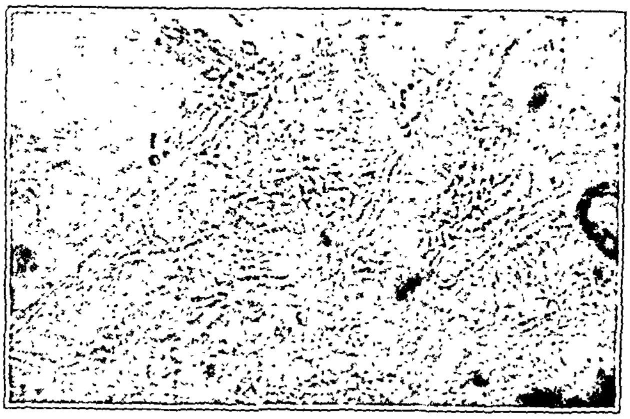

Fig. 3.—Microsporon furfur in skin scraping, 25 per cent sodium hydroxide.

USE

If it is not inconvenient, the scales and hair should first be soaked in ether to remove their surface oil. Otherwise they may be placed directly on a glass slide and covered with a cover slip. Several drops of the reagent are then run beneath the cover slip. Almost at once the keratin structures begin to swell and flatten out after they have made contact with the reagent. In a minute or two the cover slip may be gently pressed down to hasten the clearing process. From five to ten minutes is quite sufficient to produce enough clearing for a good examination. With a solution of potassium hydroxide, several hours is often necessary to obtain satisfactory clearing. Through the microscope the field shows up clearly and the vegetative structures are seen easily and distinctly as much thicker strands than are found when potassium hydroxide is used. Likewise, there are many more of them apparent than are seen when the fixed alkalis are used. The walls of the fungi are seen as brilliant blue or green borders that enclose delicately reticulated bands of internal structure.

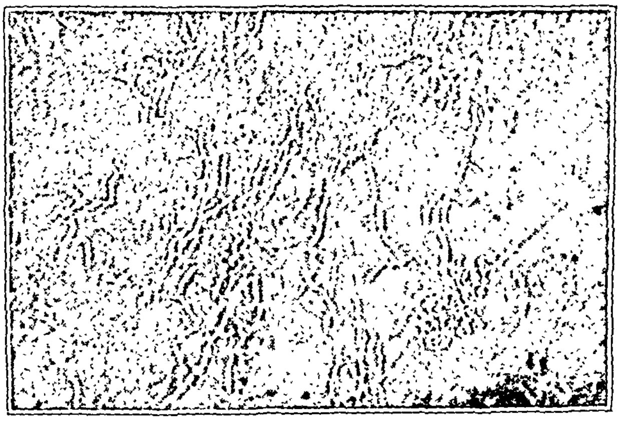

Fig. 4.—Microsporon furfur in skin scraping, sodium sulphide reagent.

310 South Michigan Avenue.

HEPATODIAPHRAGMATIC ADHESIONS AS A CAUSE OF UPPER ABDOMINAL PAIN

J. William Hinton, M.D., New York
Assistant Professor of Surgery, New York Postgraduate Medical School and Hospital; Assistant Attending Surgeon, Bellevue Hospital; Assistant Attending Surgeon, St. Mark's Hospital

When patients present symptoms of chronic pain referable to the right upper quadrant with acute exacerbations, one immediately thinks of a diseased biliary or genito-urinary tract and possibly a gastric or duodenal ulcer associated with chronic pancreatitis. If these are excluded, one's attention is directed to the cardiovascular or central nervous system or to diseases of the vertebral column; if after careful clinical and laboratory studies no cause can be found to account for the pain, the patient may be considered a psychoneurotic.

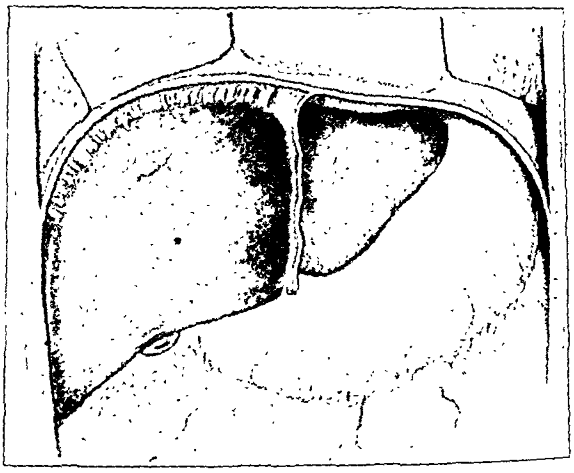

Fig. 1.—Anterior view of adhesions between liver and diaphragm.

Curtis[1] recently called attention to adhesions in the right upper quadrant as a sequela of a gonorrheal infection in females. He describes them as violin string or banded adhesions occurring between the anterior surface of the liver and the anterior abdominal wall. In the case I encountered in which the operation was performed before Curtis published his recent observations, the adhesions were between the liver and the diaphragm with the pain referable to the right kidney region. The patient had been roentgenographed and told she had a kidney stone, some months before entering the hospital, and was admitted with that diagnosis for operation.

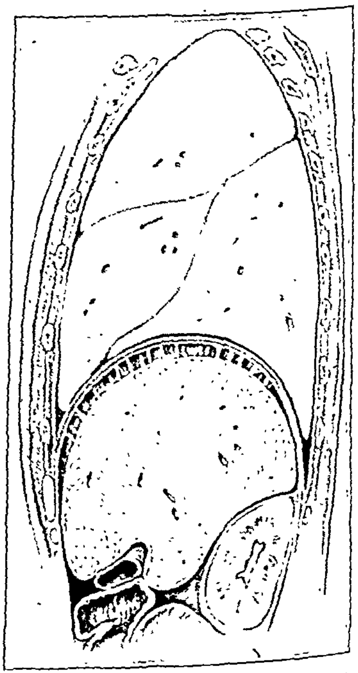

Fig. 2.—Lateral view of adhesions between liver and diaphragm.

REPORT OF CASE

History.—A woman, aged 29, admitted to the Fourth Surgical Division of Bellevue Hospital, March 2, 1930, complained

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1. Curtis, A. H.: A Cause of Adhesions in the Right Upper Quadrant, J. A. M. A. **94:** 1221 (April 19) 1930.

chiefly of severe pain over the right kidney and the right upper quadrant. The patient was married and had one child, aged 10 years. About one year after the birth of her child she began having pain over the lower part of the abdomen associated with a white discharge; the pain was more severe in the right lower quadrant. Four months after onset of the pain she entered a hospital in the suburbs of New York and had a curettage without improvement; then, two months later, Sept. 16, 1921, she entered Bellevue Hospital complaining of a white discharge and pain in the lower part of the abdomen which had been severe for two weeks. A diagnosis of chronic salpingitis, bilateral, and endocervicitis was made.

The patient was treated conservatively with improvement and was discharged, September 26. She continued to have abdominal discomfort for the next year and was operated on in November, 1922, in the Receiving Hospital in Detroit at which time the right tube, the right ovary and the appendix were removed.

Present Illness.—The patient stated that she had had pain in the right upper quadrant and the kidney region since before her operation in November, 1922. This pain was at first of a dull character but it gradually became worse, at times being quite severe, in her right side. Nine months before admission the pain became very severe and the patient came to the outpatient department at Bellevue Hospital and after clinical and roentgen examination was told that she had a kidney stone. She continued to have discomfort, which was growing gradually worse until three days before admission to the hospital, when she had very severe pain in the right costovertebral angle associated with a feeling of frequency of urination, but she did not void. The pain also radiated around to the vulva. During the past few months she had lost 12 pounds (5.4 Kg.).

The patient also gave a history of having been hit over the lower right side of the chest while she was coasting fourteen months before. This accident, however, did not incapacitate her at the time.

Examination.—There was definite tenderness of the right costovertebral angle and lower right part of the chest in the midaxillary line, but no gallbladder or abdominal tenderness. Otherwise the examination was negative. March 4, 1930: Roentgenograms of the genito-urinary tract were negative for calculi. March 7, roentgenograms of the chest were negative. March 10, cystoscopic examination and pyelograms were negative with a note that the urologic tract was not impaired. March 15, the dye test revealed that the gallbladder was normal. March 19, a gastro-intestinal series was negative. The Wassermann reaction, blood counts, and urine examinations were negative. The patient continued to complain of severe pain in the right kidney region and over the lower right side of the chest, so an exploratory operation was decided on.

Operation and Result.—March 27, the abdomen was opened through an upper right rectus muscle splitting incision. The gallbladder was of normal color, not thickened, and no stones were palpable. The stomach and duodenum were normal and the pancreas was not enlarged. The small intestine was then inspected and found normal. The appendix was found to have been removed at the previous operation; the large intestine appeared normal to palpation. The uterus was of normal size, the left tube and ovary normal to palpation with a moderate number of adhesions in the pelvis as the result of the previous operation. The right kidney was of normal size and firmly fixed. When the hand was passed over the dome of the liver, many firm adhesions were found between it and the diaphragm; these were more numerous over the posterior surface of the liver. There were no adhesions between the liver and the anterior abdominal wall and the adhesions described would not have been detected unless the hand had been passed over the liver. The left kidney was palpated and found of normal size and firmly fixed with the spleen and left lobe of liver normal to palpation.

It was felt after the exploration had been completed that the symptoms were referable to the hepatodiaphragmatic adhesions, and these were divided by a blunt dissection. A moderate amount of bleeding ensued, which was controlled by hot packs. The abdomen was then closed in anatomic layers without drainage. The exact location of the adhesions is given in the illustrations.

Postoperative Course.—The patient made an uneventful convalescence with the exception of a slight wound infection and was discharged from the hospital, symptom free, April 19.

The patient was last seen, June 19, at which time she was symptom free except for a slight discomfort over the left lower quadrant which was referable to the chronic pelvic infection.

COMMENT

After the completion of the roentgenograms and laboratory studies on this patient she would have been discharged without operation except that her complaints of her original pain were so serious that an exploratory operation was felt to be justified without any conception of what might be the exact cause of the patient's discomfort. The observations of Curtis have again proved that one must not neglect a careful history in arriving at a final diagnosis even in the face of negative roentgenographic and laboratory observations.

125 East Seventy-Second Street.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

ANTIPNEUMOCOCCUS SERUM (See New and Nonofficial Remedies, 1930, p. 351).

The National Drug Co., Philadelphia.

Antipneumococcic Serum, Type I.—Marketed in packages of one 50 cc. double-ended vial with apparatus for intravenous injection.

ERYSIPELAS ANTISTREPTOCOCCUS SERUM.—A specific serum containing the antibodies and antibacterial properties of *Streptococcus erysipelatis.*

Actions and Uses.—For therapeutic use against erysipelas. It may be of value when administered in adequate doses in the early stages of the disease. Though there is no evidence for the value of nonspecific antistreptococcus serums, there appears to be some evidence for the value of a serum representing the antigenic and antibacterial properties of *Streptococcus erysipelatis.*

Eli Lilly and Company, Indianapolis.

Erysipelas Antistreptococcic Serum-Lilly (Concentrated Globulin).—The serum is obtained from horses immunized with strains of hemolytic streptococci obtained from human cases of erysipelas. It is concentrated by a method similar to that employed in the refinement of diphtheria antitoxin, the resultant serum containing both neutralizing and bacterial antibodies. Marketed in packages of one syringe containing an average initial therapeutic dose.

Dosage.—The contents of one syringe.

PSYLLIUM SEED (See New and Nonofficial Remedies, 1930, p. 311).

Richards Psyllium Seed.—A brand of psyllium seed-N. N. R.

Prepared by Richards Pharmacal Co., Inc., New York.

SCARLET R MEDICINAL BIEBRICH (See New and Nonofficial Remedies, 1930, p. 147).

The following dosage form has been accepted:

Ointment Scarlet Red Biebrich 8 Per Cent. Scarlet R medicinal Biebrich-N. N. R. 8 per cent in an ointment base consisting of stearin 5 per cent, wool fat 25 per cent, and petrolatum 70 per cent.

Prepared by the National Drug Co, Philadelphia.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1930, p. 373).

The National Drug Co., Philadelphia.

Typhoid-Paratyphoid A Vaccine (See New and Nonofficial Remedies, 1930, p. 377).- Also marketed in packages of three 1 cc. vials each containing 750 million killed typhoid bacilli and 250 million killed paratyphoid A bacilli per cubic centimeter.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 6, 1930

THE WHITE HOUSE CONFERENCE ON CHILD WELFARE

Elsewhere in this issue (page 1765) appears an extended account of the reports made available by the White House Conference on Child Welfare, held in Washington in November. Most of the newspaper reports covering the occasion emphasize the attempts of various interests to take advantage of the conference to promote a campaign for a children's bureau separate from other health activities. As is usually the case, the element of conflict thus introduced dominated the publicity rather than the constructive efforts exemplified in the well considered reports of committees that had been giving thought to the problems of child welfare, child health and education for the past year. In the care of the child lies the future of the nation; in the control of the education of the child and in the establishment of its habits early in life lies the secret of its happiness in later years. The disposition among psychologists, psychiatrists, social workers and specialists in various medical fields to separate their individual problems from the consideration of the whole baby is one of the destructive tendencies of the times. Superspecialization in the adult is a serious problem, notwithstanding the fact that the adult, through an understanding mind, is able frequently to ward off some of the evils associated with consideration of an organ, a tissue or a system within his body rather than with the human being as a whole The child, unable to think for himself, succumbs readily to lopsided control, so that the body and mind may be distorted by superspecialization in its handling. In a great conference, such as that which has just been held, it is possible for all the various interests to come together and to exchange their views—indeed, to be forced into a realization that the child must be considered as a human being and not as a mental case, a handicapped arm, a case in malnutrition or a problem in behavior.

The present administration of the government is apparently committed to unification of control in public health. Committees in the White House Conference charged with the consideration of administrative methods recommended that the health of the child be not separated from other problems of public health but that it be brought properly under the attention of the United States Public Health Service. In an attempt at a revision of this point of view, women's clubs, welfare organizations and indeed every possible influence that could be brought to bear were asked to telegraph to the conference in favor of the establishment of a special department of the government for the care of the child separate from the United States Public Health Service. On short notice and without thorough consideration of all the motives and principles underlying the matter, many organizations sent their telegrams. Fortunately, the conference was so organized that it could not be stampeded by any such method.

The immediate, practical outcome of the White House Conference is hard to determine. It had the advantage of causing several thousands of persons especially interested in the problem of child welfare to analyze and to coordinate their views. It caused the entire nation to be, for at least one week, child-minded. It will bring about, no doubt, the dissemination of much educational material to the public. The progress of a movement so auspiciously and expansively initiated will be observed with interest.

MEMORIAL FOR PHYSICIANS WHO SERVED AND DIED IN THE WAR

In Paris today there is being constructed a memorial building, called Pershing Hall, planned to preserve in sculpture, painting and historical mementoes America's participation in the war. The Army, the Navy, the Marine Corps, the National Guard, the Engineers, the American Field Service, the Red Cross, the Knights of Columbus, the Salvation Army, the Jewish Welfare Board, the Elks and the Daughters of the American Revolution have each contributed from ten thousand to twenty-five thousand dollars for special halls in this building dedicated to their respective services. Princeton, Harvard, Yale and a number of other universities also have established in this building memorials to their war dead. As representative of the American medica profession, the American Medical Association has been asked by the sponsors of Pershing Hall to contribute ten thousand dollars for furnishing and decorating a salon in this building devoted to the commemoration of the physicians who served and died. It is understood tha this great building, now almost completed and costing approximately a million dollars, will house a grea historical library, an auditorium and other facilities a an American center in Paris. There American children will be able to come for classes in English, civics and American history, and a center will be available fo distribution of information to Americans visiting Paris

The Board of Trustees of the American Medica Association, after giving careful consideration to the request to devote ten thousand dollars from the funds of the Association to the establishment of a medical salon in Pershing Hall, recognized the opportunity here available for a spontaneous contribution by physicians throughout the country who desired to be individually of assistance in sponsoring this project. The raising of ten thousand dollars by some forty-eight state medical organizations as component parts of the American Medical Association should be no great task. Therefore, the Board of Trustees authorized a special committee consisting of Dr. William Gerry Morgan, Dr. Olin West and the editor of The Journal to place this project before the medical profession and to request from the members of the profession individual contributions of from one to twenty five dollars for this purpose. All contributions will be acknowledged and a list of contributors will be made available in the *American Medical Association Bulletin*. A book containing their names will rest permanently in the salon in Pershing Hall. On advertising page 38 in this issue of The Journal appears a further announcement of this project, together with a coupon to be used in sending in the contribution.

No word need be said—indeed, it is doubtful whether any words might be said—that would fittingly record the service rendered by the medical profession in the great conflict. No memorial can be builded that will suitably memorialize the supreme sacrifice made by those who died in their attempt to salvage the wreckage of the greatest war the world has ever known. It is fitting, however, that, in this great memorial to be erected in Paris, some record should be available of those who served the medical profession and the nation. It is desirable that the American Medical Association, through its membership representing the vast majority of the medical profession, should sponsor the raising of the ten thousand dollars necessary to furnish, decorate and maintain the salon in which the information concerning the work of the profession in the war will be permanently available. Even in times of financial depression the majority of physicians will be able to devote one dollar to such a memorial and many will be glad indeed to contribute ten, twenty or twenty-five dollars for such a cause. It might well be that the faculties of medical colleges, the staffs of hospitals and clinics, and physicians organized in county medical societies, or in such organizations as the Association of Military Surgeons and the Medical Veterans of the World War, may wish to contribute their donation in sums representing the organization. All such contributions will be specially acknowledged in The Journal and in the *Bulletin*.

The Trustees of the Association would be gratified to be able to notify the sponsors of Pershing Hall before January 1 that the medical profession had welcomed the opportunity to contribute and had completed its donation in less than thirty days. THE COUPON APPEARS ON ADVERTISING PAGE 38.

ICTERUS NEONATORUM

The line of demarcation between the physiologic and the pathologic is sometimes indistinct, as in icterus neonatorum. Biliary pigmentation, as a rule, is the expression of an abnormality in the excretion of bile or in the breaking down of hemoglobin. Visible jaundice of the new-born infant occurs so frequently, however, that many physicians have concluded that it must be a normal physiologic process. Statistical tabulations place the incidence of icterus neonatorum at from 20 to 80 per cent of all normal new-born infants. It occurs more frequently in premature than in full-term infants. Usually it is manifest on the second to the fifth day of life but disappears spontaneously by the end of the second week of life. This spontaneous recovery without ill effects also suggests that jaundice of the new-born is a physiologic state. Nevertheless the cause and the nature of the pigmentation have always challenged intelligent curiosity.

A variety of divergent views and theories have been offered. Virchow early in his scientific career expressed a view that foreshadowed the present conception, but later he abandoned it. In the second of two lectures on the excretion of uric acid by the fetus and the new-born infant, delivered before the Berlin Obstetric Society, Nov. 24, 1846, he said that the establishment of independent respiration, digestion and heat regulation at birth is a revolution that marks the emancipation of the child from the mother and is characterized by important chemical and physical changes in the blood. Among these changes is increased destruction of red blood corpuscles, from whose liberated hemoglobin bile pigment is formed. He then asked a question that may be freely translated as follows: "Is it not natural to look on icterus neonatorum, which is held to be a disease, as merely an increase in a physiologic process, whose excess reveals itself by manifestations that are less stormy at earlier and later periods of life?" Ten years later, in an annotation to this lecture when it was included in a collected reprint[1] of his early writings, he had receded from his clairvoyant position and found it necessary to ascribe icterus neonatorum to catarrh of the duodenum and bile passages. It had become a pathologic condition not essentially different in its pathogenesis from catarrhal jaundice of the adult.

To the weight of this authority, three decades later, the weight of the Minkowski and Naunyn dictum "Ohne Leber kein Icterus" was added, based on their classic experiments on bile formation in geese. Since the formation of bile pigment required the activity of the liver, it followed of necessity that icterus neonatorum must be due to a disturbance of this hepatic function. But morphologic evidence of such disturbance of function, except the patent jaundice that is an end-result, could not be readily adduced. The duodenal and biliary catarrh described by Virchow, the pigment thrombi of the bile canaliculi described by others, or intrahepatic biliary stasis due to temporary portal congestion resulting from the adjustment of the circulation from the fetal to the postnatal type could not be detected with sufficient uniformity to offer a satisfactory explanation.

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[1] Virchow, Rudolf: Ueber Harnsäure-Abscheidung beim Fötus und Neugebornen: Gesammelte Abhandlungen zur wissenschaftlichen Medicin, Frankfort a. M., Meidinger Sohn & Co., 1856, p. 833.

The introduction by Hijmans van den Bergh of the Ehrlich diazo reagent as a qualitative and quantitative test for bilirubin in the blood and fluids of the body presented a new method for the study of abnormalities in biliary pigmentation. By the application of this method it has become possible to distinguish between an increase due to bilirubin that has already entered or passed through the liver cells, the resulting jaundice being of an obstructive and reabsorptive type, and an increase due to bilirubin that has not yet been subjected to the activity of the liver cells, the resulting jaundice being nonobstructive. Knowledge of biliary pigmentation has been further clarified by the study that has been given to the functions of those cells and tissues that have come to be grouped together as the reticulo-endothelial system. By the activity of these cells, hemoglobin derived from the destruction of erythrocytes may be transformed into bilirubin. It has become necessary to recognize that anhepatic formation of bilirubin may occur and that forms of jaundice that are shown by the van den Bergh reaction to be nonobstructive may be hematogenous in origin.

Proof of the extrahepatic formation of bilirubin has led to renewed interest in the genesis of icterus neonatorum. Schultz,[2] working in Aschoff's institute in Freiburg, used the microchemical detection of iron in the tissues of new-born infants as a criterion of increased red blood corpuscle destruction, which might lead to jaundice. In three fetuses of the third to sixth month of pregnancy, obtained at necropsy of women in whom labor had not begun, the cells of the reticulo-endothelial system were free from iron. In all infants, whether full-term or as premature as those mentioned, whether born dead or alive after labor had been initiated, there was erythrophagocytosis by the cells of the reticulo-endothelial system and deposition of iron in these cells. Apparently the mechanism of delivery initiates changes in the body of the child that lead to increased destruction of erythrocytes and to formation of bilirubin from their derivatives by the reticulo-endothelial system. Aschoff and Hummel,[3] in a study of premature and full-term stillbirths and live births, noted some interesting peculiarities of the bilirubin of such infants. Most striking was the crystallization of bilirubin in the blood and body fluids and in the tissues. Such a phenomenon has been noted only rarely in jaundice that develops at some time after birth, and then only in jaundice of hematogenous origin of the type to which Aschoff has applied the term hyperfunctional icterus. The van den Bergh reaction of the blood was the indirect one of bilirubin of extrahepatic origin and was more intense than normal even in the absence of visible jaundice. The contents of the biliary passages and intestine of still-born infants gave an indirect reaction; in infants that lived for a while, the reaction was both direct and indirect. Aschoff and Hummel interpret their results as proof of the extrahepatic formation of bilirubin in new-born infants and in icterus neonatorum.

If the increased bilirubin formation in the body of the new-born infant is due to increased and perhaps physiologic destruction of red blood corpuscles beginning during or immediately after birth, the reason for such increased destruction remains to be determined. Schultz associated the phenomenon with the initiation of delivery. Red blood corpuscles are seen so frequently in the cerebrospinal fluid of new-born infants as to suggest that a moderate degree of extravasation of blood from the capillaries of the body may be almost a physiologic effect of the mechanism of labor. This process might account for the degree of erythrophagocytosis and iron pigmentation noted by Schultz in nonjaundiced infants, but it would have to be extreme, that is, pathologic, to account for the degree of jaundice not infrequently seen in icterus neonatorum. Goldbloom and Gottlieb [4] found that the blood of all new-born infants yields an indirect van den Bergh reaction, visible jaundice being merely a matter of the degree of extrahepatic bilirubin formation. That the erythrocyte count of new-born infants is high, as compared with that of children and adults, has long been known. Goldbloom and Gottlieb observed a rapid decrease of this polycythemia. The decrease in the number of red corpuscles began during the first twenty-four hours after birth and reached its maximum within the first week of life, the erythrocyte count becoming stabilized by the latter half of the second week. In vitro tests proved the fragility of the erythrocytes to be greater during the period of decreasing polycythemia than later. The immature erythrocytes, the nucleated and reticulated red blood cells, are more fragile than the mature ones and disappeared from the circulating blood during the early days of life. In a series of sixty-one new-born infants, Mitchell [5] of the University of Pennsylvania has also reported a progressive decrease in the erythrocyte count from the first to the tenth day after birth, but he noted that the depth of jaundice was not always proportional to the decrease in the number of erythrocytes. The degree of bilirubinemia and of jaundice is probably a resultant of three variables, the degree of destruction of red blood corpuscles, the degree of activity of the reticulo-endothelial system, and the degree of secretory activity of the liver cells.

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[2] Schultz, W. G.: Zur Pathogenese des Icterus neonatorum, Ztschr. f. Geburtsh. u. Gynäk. **94**: 793 (Feb.) 1929.

[3] Aschoff, L., and Hummel, R.: Beitrag zur Frage des Icterus neonatorum, Virchows Arch. f. path. Anat. **275**: 1 (Jan.) 1930.

[4] Goldbloom, Alton; and Gottlieb, Rudolf: Icterus Neonatorum, Am. J. Dis. Child. **38**: 57 (July) 1929.

[5] Mitchell, J. M.: Relationship of Jaundice and Weight to Blood Values in the New-Born Infant, Am. J. Dis. Child. **38**: 518 (Sept.) 1929.

Goldbloom and Gottlieb at McGill have presented a plausible explanation of the polycythemia of the new-born infant and of its rapid disappearance. Because of the nature of the fetal circulation, the fetus lives in a state of relative anoxemia, a state which, as in post-natal life, demands a high number of erythrocytes for the transport of the available oxygen. With the establishment of a separate arterial and venous circulation at birth, the necessity for polycythemia disappears and the more immature and more fragile red blood corpuscles quickly disappear from the blood. Their destruction leads to physiologic hyperbilirubinemia that may manifest itself as visible jaundice.

The physiologic character of icterus neonatorum warrants the textbook statement that this form of jaundice does not require treatment, but it should not be permitted to blind the physician to the fact that other forms of jaundice the prognosis of which is much more grave may also develop in the early days of life. Obstructive jaundice may be due to inflammation of the duodenum or biliary passages or to congenital anomalies of the biliary tract, and jaundice of hematogenous origin may be due to sepsis or to congenital familial hemolytic icterus. A half century ago Violet[6] made a distinction between jaundice of the new-born, icterus neonatorum, a physiologic state, and jaundice in the new-born, icterus in neonato, a pathologic condition, a distinction stressed also by Aschoff and Hummel.

Current Comment

ROENTGEN DIAGNOSIS OF SYNOVIAL ADHESIONS

Following fifteen years of patient experimentation, another unusual chemical adjunct to roentgen diagnosis seems to be available. With this new aid, altered permeability of synovial membranes can be determined and accurate pictures secured of synovial adhesions. Demonstrations of abnormal synovial permeabilities were made about sixteen years ago by Dr. Henry Keller,[7] orthopedic surgeon of the Neurological Hospital, New York, who injected easily diffusible dyes into joint cavities and followed their subsequent excretion by the kidneys. To modify this test so as to obtain at the same time roentgenograms of joint cavities, it was necessary to find or synthesize a nontoxic chemical substance readily excreted by the kidney, and of sufficient density to cast a distinct shadow on the x-ray plate. Many substances were tried. One compound was found suitable. This substance is a disodium salt of tetraiodo-orthosulphobenzoic acid. This sodium salt is odorless, tasteless, and readily soluble in water, an 11.3 per cent solution being isotonic with human blood. The isotonic solution is nonirritating when instilled into the conjunctival sac of the human eye. Injection into laboratory animals does not cause local irritation. Intravenous injections are well borne by them and the injected drug is rapidly excreted by the kidneys. Kidney function is not impaired. With ordinary concentrations, no depression is demonstrable with isolated smooth muscles. Albino rats previously trained in a circular maze do not show impairment of memory on administration of the new drug or alteration in neuromuscular control. Injected into joint cavities of dogs, the new compound gives sharply defined x-ray shadows of joint cavities. After this extensive pharmacologic study the new compound was tested clinically and it is reported to have fulfilled all expectations. In addition to being of interest to orthopedic surgeons, this diagnostic victory is an ideal example of ethical medical research. Detailed study was made on lower animals before clinical application was attempted.

THE 1930 NOBEL PRIZE IN MEDICINE

Karl Landsteiner, since 1922 a member of the Rockefeller Institute for Medical Research in New York, is the recipient of the 1930 Nobel Prize in Medicine. Since the beginning of his scientific career, more than thirty years ago, Landsteiner has made contributions of great significance to medical science. He has thrown much new light on the nature of paroxysmal hemoglobinuria. With Popper he first produced infantile paralysis in the monkey, a demonstration that was followed by the intensive experimental work to which we owe practically all that is known of the nature of the causative agent of the disease. Undoubtedly Landsteiner's greatest and most brilliant work is his study through many years of fundamental problems in immunity, particularly the chemistry of the specificness of immune reactions. In this field, that is, the relations of the mechanisms of immunity to chemical structure, he has been and is a great leader, making no hasty or extravagant claims but standing always on solid ground. The main motivation for awarding to him the Nobel Prize in Medicine appears to have been his discovery of the human blood groups or the phenomenon of iso-agglutination. His first statement about human iso-agglutination appears in a footnote to an article[1] in 1900 about the antifermentative, lytic and agglutinating actions of the blood serum and lymph. In this footnote he says that the serum of normal persons agglutinates not only the blood corpuscles of animals but also the corpuscles of other persons. It remains, he continues, to determine whether this phenomenon depends on natural, individual differences or on injurious influences perhaps of bacterial nature. In fact, he had found the action especially pronounced in blood from patients with severe diseases. Before long he demonstrated conclusively by careful observations that iso-agglutination depends on individual, physiologic differences in the blood. Here was a concrete and clean-cut discovery that was destined to have wide applications. Landsteiner himself early pointed out the possibility that iso-agglutination might prove of importance in the identification of blood for medicolegal purposes and also in blood transfusion. The practical use of blood grouping, now universal, to exclude incompatible donors in therapeutic transfusion was initiated and developed especially in this country. When it became established that the factors on which blood grouping depends are transmitted according to the laws of heredity, determination of the blood groups was applied to the study of interracial relationships and of problems of parentage. When Landsteiner described the blood groups, he was an assistant under Weichselbaum in the pathologic-anatomic institute of the University of Vienna. No doubt he little thought then that that work was to bring him such rich reward thirty years later, but he did the work and carried out the observations as carefully and accurately as he could without any consideration or motive other than to find out all in his power about something new and obscure. Thus his work became the starting point in a series of advances in knowledge and achieved its international and well merited recognition.

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[6] Violet, G.: Ueber die Gelbsucht der Neugeborenen und die Zeit der Abnabelung, Virchows Arch. f. path. Anat. **80**: 353, 1880.

[7] Keller, Henry: Experimental Studies on Visualization of Joints by Injections of a Drug, Proc. Soc. Exper. Biol. & Med. **27**: 852 (May) 1930.

[1] Landsteiner, Karl: Zur Kenntnis der antifermentativen, lytischen und agglutinierenden Wirkungen des Blutserums und der Lymphe, Centralbl. f. Bakt., I, **27**: 357, 1900.

Association News

THE PHILADELPHIA SESSION

The Scientific Exhibit

The Scientific Exhibit for the Philadelphia session of the American Medical Association, June 8-12, 1931, will be located in the Philadelphia Municipal Auditorium.

The Committee on Scientific Exhibit emphasizes again the necessity of presenting exhibits in a manner that will stress their scientific value. This may be done by carefully worded explanatory placards or legends, and particularly by personal demonstration by the investigator himself. The committee feels that the Scientific Exhibit offers unusual opportunity for investigators and visiting physicians to meet and discuss informally the phases of the research being presented. Also it should be remembered that general attractiveness is essential. The committee will do its part by providing attractive booths decorated appropriately. Uniform illuminated signs giving the name of the exhibitor and the title of the exhibit will be furnished, as well as a uniform shelf with covering.

Application blanks for the Scientific Exhibit may be obtained by sending requests for them to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago.

Applications must be received before Feb. 20, 1931. In order that the amount of space available may be apportioned to the best advantage to all concerned, the committee will make no assignments previous to March 10; nor can large blocks of space be assigned to individual exhibitors.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, 10:30 on Thursday and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 8.	Preventing Death from Cancer.
December 9.	Hay! Hay!
December 11.	Dust.
December 13.	What Can Be Done About Whooping Cough?

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

December 8.	Give the Baby a Chance.
December 9.	Unsuspected Dangers.
December 10.	When Winter Comes.
December 11.	What Shall We Do with Garbage?
December 12.	Physical Fitness.
December 13.	Can It Be Done?

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Research on Mussel Poisoning.—Investigation of the occurrence of poisoning in mussels and clams of the Pacific Coast which led to the illness of sixty-two people and the death of four in July and August, 1929, was recently completed by the University of California Hooper Foundation for Medical Research. It was found that the Pacific Coast mussel contains minute traces of a poison throughout the year, but that it is apparently dangerous only during the months of July and August. Attempts to locate the source of poison met with little success. Tests of other shell-fish in the vicinity of the mussel beds failed to reveal poison.

Narcotic Violations.—At the regular meeting of the California State Board of Medical Examiners in Sacramento, October 21-22, the following physicians were placed on probation for the periods indicated, having been found guilty of narcotic violations: Drs. George H. Bland, Fresno, five years; Dwight D. Johnson, Grass Valley, three years, and James T. Murray, five years, during which time they shall not apply for or have a narcotic permit nor have narcotics in their possession, and Fred H. Van Tassell, Berkeley, one year, following a hearing based on narcotic derelictions. Dr. Murray's restriction applies to alcohol also. The following physicians' licenses were revoked for narcotic convictions: Drs. Archibald A. Atkinson, North Sacramento; James Terrell Brown, Los Angeles; Samuel D. Cottrell, Los Angeles; Ernesto Scosseria, San Francisco, and Newton B. Siler, Los Angeles.

FLORIDA

Personal.—Dr. Walton H. Y. Smith, formerly of the health department of Tampa, has been appointed health officer for the Taylor County unit.——Dr. Henry Mason Smith, Tampa, was recently selected as president of the Florida State Board of Health; Dr. Henry E. Palmer, Tallahassee, was appointed to succeed Dr. William D. Nobles, Pensacola, resigned, and Dr. Edward M. L'Engle, Jacksonville, to succeed Hon. C. H. Mann, Jacksonville.

GEORGIA

Society News.—Dr. Herbert B. Kennedy, Atlanta, gave a clinical talk, November 20, before the Fulton County Medical Society at Atlanta on "Why People Consult a Physician," and Dr. William P. Herbert, Asheville, N. C., spoke on "Surgery as an Aid in the Cure of Pulmonary Tuberculosis." Drs. George W. Fuller and Dunbar Roy presented case reports on "Retroperitoneal Mixed Tumor" and "Unilateral Total Ophthalmoplegia Externa," respectively.——The Chatham County Medical Society was addressed at Savannah, October 28, by Dr. Walter A. Norton on "Spontaneous Rupture of the Liver."——The Georgia Urological Association was addressed at Atlanta, October 30, by Drs. Henry W. E. Walther, New Orleans, on "The Urologist's Attitude Toward the Neuroses and Functional Disorders of the Urogenital Tract"; Russell A. Hennessey, Memphis, Tenn., "Traumatic Lesions of the Urinary Organs," and Owsley Grant, Louisville, "The Place of the Punch in Prostatic Surgery—Report of Fifty Consecutive Cases."——The state board of health will soon begin work on a $3,700 school building at Alto for the children who are inmates of the tuberculosis sanatorium; plans have also been approved for a similar building for the Negro children.

INDIANA

Personal.—Dr. Amos Carter has announced his retirement from active service as superintendent of the state sanatorium at Rockville, a position which he has held for eleven years. For a number of years he was staff physician of the state boys' school at Plainfield. He began practice in 1878.

Society News.—Dr. Robert B. Preble, Chicago, delivered a paper on "Generalizations Concerning Heart Diseases," November 13, before the Tippecanoe County Medical Society, Lafayette.——The Terre Haute Academy of Medicine was addressed, October 23, by Dr. Edward L. Keyes, New York, on "Preoperative Measures to Be Used in Lessening Mortality in the Prostatic."

IOWA

Lectures on Obstetrics.—Dr. Everett D. Plass, professor and head of the department of obstetrics and gynecology at the State University of Iowa College of Medicine, Iowa City, will deliver ten lectures on obstetrics in December. The course consists of lectures, lantern slides and manikin demonstrations, and is composed of ten lectures of two hours each on the following topics: Contraception and Contraceptive Methods; Disease Complications of Pregnancy; The Management of Normal Labor; Hyperemesis Gravidarum; motion pictures — Podalic Versions; Induction of Abortion and of Premature Labor; Forceps Version Breech Extraction; Cesarean Section; Hemorrhage and Puerperal Infection. A registration fee of $20 will be charged. Physicians interested in this course should communicate with the University of Iowa School of Medicine.

KANSAS

Society News. — The Clay County Medical Society was addressed, September 17, by Dr. Earle G. Brown, Topeka, on public health.——Dr. Justin A. Blount, Burdett, addressed the Rush-Ness County Medical Society, September 10, on "Factors in the Consideration of Diarrheas of Infancy."——The Dickinson County Medical Society was addressed at Abilene, October 23, by Dr. Herschel R. Turner, Hope, on basal metabolism.——Dr. Laurence P. Engel, Kansas City, addressed the Bourbon County Medical Society, October 20, on the surgical treatment of goiter, and Dr. Peter T. Bohan, Kansas City, Mo., goiter heart.

MARYLAND

Dr. Stokes's Memory Honored. — The unveiling of the bronze memorial tablet of Dr. William Royal Stokes in the municipal building, Baltimore, took place, November 26. Dr. C. Hampson Jones, commissioner of health, presented the tablet to Baltimore. It was erected to Dr. Stokes's memory by the physicians and other employees of the Baltimore City Health Department. Dr. Stokes, who was director of laboratories of the city and state departments of health many years, died of psittacosis. Addresses were made by Drs. William H. Welch, professor of the history of medicine, Johns Hopkins School of Medicine, and Dr. Hugh S. Cumming, surgeon general, U. S. Public Health Service.

Society News. — Dr. Edward A. Looper gave a moving picture demonstration of removal of foreign bodies from the esophagus and bronchi before the Baltimore County Medical Society, November 19.——Dr. William C. White of the U. S. Public Health Service gave a public lecture on "Acid-Fast Bacteria, Their Relation to Disease and the Need for Better Preventive Measures," November 25, at Johns Hopkins University; his lecture was one of the De Lamar course in hygiene.——At a meeting of the Baltimore City Medical Society, November 21, in Osler Hall, a major portion of the entire group of 300 house officers of the hospitals of Baltimore City were received into membership. Dr. Lewellys F. Barker addressed the meeting on "Work of the Resident Staff of the Hospitals in Baltimore and Its Significance for Subsequent Medical Careers."

MICHIGAN

Society News.—Madame N. Dobrovolskaya-Zavadskaya of Madame Curie's laboratory, Paris, France, addressed a joint meeting of the Washtenaw County Medical Society and the University Roentgen Ray Society, Ann Arbor, November 19, on "The Heredity of Cancer." The Wayne County Medical Society was addressed, November 18, by Madame Dobrovolskaya-Zavadskaya on "Biological Basis for the New Conception of Life."——Dr. George E. McKean, Detroit, addressed the Jackson County Medical Society at Jackson, November 18, on treatment of hypertension.——Drs. R. E. Logan and Robert L. Novy addressed the heart committee of the Tuberculosis and Health Society of Detroit and Wayne County, November 14, on "The Cardiac Child at School" and "Developing a Normal Personality," respectively.

Dr. Pritchard Goes to Welfare Foundation. — Dr. J. Stuart Pritchard, for many years on the staff of the Battle Creek Sanitarium, has resigned to become medical adviser to the W. K. Kellogg Child Welfare Foundation, recently established for the rehabilitation of undernourished children. Dr. Pritchard will be retained on the sanatorium staff as consultant. His place as director of the chest department will be filled by Dr. James K. M. Gordon, his associate for the past five years. Dr. Pritchard was appointed representative of the U. S. government at the International Conference on Tuberculosis recently held at Oslo, Norway, but was unable to attend.

MINNESOTA

School Superintendent Violates Basic Science Law.—Edward L. Schmidt of the public school board at Meadow Lands was sentenced, November 20, to pay a fine of $500 or spend three months on the St. Louis County Work Farm, after entering a plea of guilty to a charge of practicing healing without a basic science certificate. The defendant has persisted for the last three years in treating people for various ailments, and investigators found various medicinal preparations, including chloroform and ether, in his possession besides a stethoscope, thermometers, artery forceps and other surgical instruments. Schmidt had been acting as health officer in three towns in the vicinity and was receiving $450 a year for that service. He had been warned on two occasions but continued in the business. The sentence was stayed until further order by the court.

Society News.—The Minnesota Radiological Society was addressed at Minneapolis, October 25, among others, by Drs. Walter H. Ude on "Roentgen Studies on the Onset of Lobar Pneumonia"; Harry M. Weber, Rochester, "Air Injection in the Diagnosis of Lesions of the Colon"; following an informal dinner, which was attended by Drs. James M. Martin of Dallas, Texas, and Bernard H. Nichols, Cleveland; Dr. Edward Schons, St. Paul, among others, spoke on "Significance of Small Intestinal Gas in the Diagnosis of Bowel Obstruction."——The Minnesota Society of Internal Medicine was addressed, among others, by Drs. Albert M. Snell, Rochester, on "An Unusual Deficiency Syndrome Secondary to Duodenal Occlusion"; George E. Fahr, Minneapolis, "Theoretical Features Particularly in Regard to the Normal and Disturbed Kidney Function"; Morse J. Shapiro, "Principles Underlying the Recent Attempts at Classification of Arthritis"; Norman P. Johnson, "An Unexploited Therapeutic Opportunity in Periodic Health Examinations of Young Adults," and Lewis M. Daniel, "A Study of Migraine in University Students." The evening session was addressed by Charles Sheard, Ph.D., Rochester, on "Energy."——A series of lectures on cardiologic subjects was begun by Dr. George E. Fahr, Minneapolis, on "The Management of the Ambulant Cardiac Patient" before the Park Region District and County Medical Society, October 8, in Alexandria.

NEW JERSEY

Aged Practitioner Honored. — Dr. Asher T. Applegate, Englishtown, who has practiced medicine for nearly sixty years in Englishtown and vicinity, was honored, October 5, by the presentation of a silver loving cup by former Governor A. Harry Moore in recognition of his long and faithful services to the community. Dr. Applegate has been mayor ever since Englishtown became a borough. He now is 84 years of age and is still actively engaged in medical practice.

Society News. — Dr. Max H. Bochroch, Philadelphia, addressed the Cumberland County Medical Society, October 14, on "Cerebrospinal Syphilis," and Dr. Harry Lowenburg, Philadelphia, "Practical Pediatrics."——The eye, ear, nose and throat section of the Academy of Medicine of Northern New Jersey was presented with an illustrated address on "Headaches and Systemic Disorders of Nasopharyngeal Origin" by Dr. Simon L. Ruskin, New York, October 13.——"Hypertensive Cardiovascular Disease" was the subject of Dr. Edward Weiss, Philadelphia, before the October 11 meeting of the Gloucester County Medical Society.——Dr. Delmer Allan Craig, Chicago, addressed the Hudson County Medical Society, October 7, on "Important Points in Safeguarding the Future of Medical Practice."——The Middlesex County Medical Society was addressed, October 15, by Dr. John F. Hagerty, Newark, on "Clinical Observations in Diseases of the Thyroid Gland."——Dr. Lester H. Hummel, Salem, addressed the annual meeting of the Salem County Medical Society, October 22, at Salem on "Bacteriologic Factors in the Cause of Common Colds."——The clinical session was inaugurated at the Hackensack Hospital, Hackensack, October 3, with a clinic and lecture by Dr. Winfield Scott Pugh, New York, on "Physical Methods in Urology."

NEW YORK

Society News. — Dr. Bernard S. Denzer, New York, addressed the Medical Society of the County of Queens, November 21, on "Treatment of Common Anemias in Infancy and Childhood"; the society was addressed, October 28, by Drs. Joseph S. Thomas, Flushing, and John Matthew Scannell, Jamaica, on "Diagnosis of Acute Surgical Diseases of the Abdomen" and "Blood Transfusion," illustrated, respectively.

Neuropsychiatric Problem Clinic Established. — The neuropsychiatric problem clinic for minor mental and nervous disorders, to be conducted jointly by the Albany Medical College and Albany Hospital, was opened recently. Sciences relating to effects of mental conditions or body ailments will have an important part in the work of the department. It will be headed by Dr. Lloyd H. Ziegler, professor of neuropsychiatry in the college and hospital, and assisted by Dr. Hugh T. Carmichael and Dr. Nelson K. Fromm. Dr. Fromm will conduct a neurologic clinic for cases in which the nervous disorder is due primarily to body ailments rather than mental troubles. In general the clinic will provide free service for persons who cannot afford to pay for private treatment by a specialist. The department will provide a new avenue of study for nurses and students, will give practicing physicians in Albany and northeastern New York an opportunity for graduate study in this field, and will expand local facilities for research work. The addition of two research fellows to the department will be provided for as soon as funds are available.

New York City

University News.—Edward S. Harkness has recently increased the endowment of Columbia University's department of surgery by a gift of $600,000, which places the department on a full university basis. The latest donation follows other large ones from Mr. Harkness, which includes the $4,000,000 site for the medical center; $2,000,000 for a residence hall at the center in 1929, and $500,000 on October 9. One million dollars was also given by Mr. Harkness to Western Reserve University Medical Center.

Pediatric Department Reorganized.—The Children's Medical Division of Bellevue Hospital, with practically the entire staff of the service, was transferred from Columbia University to New York University, July 1; this service has a census running from 100 to 175, average about 140 patients. There are six wards, one each for the following: infants with infections; infants without infections; acutely ill older children; one each for boys and girls with chronic or subacute illness; and one for gonococcus infection complicated by other illness. A special ward for tuberculosis is under construction. Every bed is in a cubicle. In the near future the outpatient department will move into a new modern building with ample room for the large attendance. Most of the teaching of pediatrics will be done on this service with some courses at City Hospital, Roosevelt Hospital and the Willard Parker Hospital for Contagious Diseases. The department has been reorganized with Dr. Charles Hendee Smith as professor of pediatrics and director of the Children's Medical Division.

Conference to Reorganize Disease Terminology.—The National Conference on Nomenclature of Disease, represented by fifty delegates from twenty national societies, met, November 24, at the New York Academy of Medicine, for the consideration of eliminating confusion in medical circles over the names of certain diseases. The conference was first formed two years ago by the initiative of the public health relations committee of the New York Academy of Medicine and is composed of representatives of various national medical organizations. In an effort to prepare an authoritative nomenclature of diseases in which all the diagnostic titles will bear a clear and unquestioned significance, a new system was proposed. In this a new disease will be classified in two ways: according to the part of the body affected and according to the cause that produces it. The method proposed by the national conference carries the analysis of causation much further than any other in that when the cause is unknown the disease is classified by the structural or functional changes which the disease produces, and this will be defined in its title.

Society News.—Under the auspices of the pediatric department of the Brooklyn Jewish Hospital, Brooklyn, a series of lectures in pediatrics and cognate sciences will commence, December 23, in the auditorium of the Dr. Leon Louria Memorial; Dr. Isidore Friesner will speak on "Middle Ear Infections in Childhood and in Infancy."——The Medical Association of the Greater City of New York was addressed, November 17, by Drs. Charles G. Kerley and Thurman B. Givan on "The Relation of Appetite Failure in Infants and Children to Defective Gastro-Intestinal Mechanics" and "Differential Diagnosis of Congenital Syphilis," respectively.——The speakers before the Yorkville Medical Society of the City of New York, November 17, were Drs. Joseph B. Wolffe on "Vasodilator Extract in the Treatment of Vascular Diseases with Special Attention to Angina Pectoris"; Aaron E. Parsonnet, Newark, N. J., "Myocardosis, the Failing Heart of Middle Life," and Albert S. Hyman, "Irregularities of the Fetal Heart: A Phonocardiographic Study of the Fetal Heart Sounds from the Fifth to Eighth Months of Pregnancy."——Dr. Pol N. Coryllos addressed the American-Hungarian Medical Association, November 18, on "Surgical and Clinical Aspects of Bronchial Obstruction."——The New York Physicians Association was addressed, November 19, by Drs. Albert A. Berg and Isidore Friesner on "Neoplasms of the Colon" and "Otological Conditions of Interest to the General Practitioner," respectively; Mr. Morris L. Ernst spoke on "Morals in Relation to Law."——The Bronx County Medical Society was addressed, November 19, by Drs. Francis Carter Wood on "Modern Cancer Research"; Maurice Lenz, "Radiotherapy in Cancer," and George Henry Semken, "Modern Cancer Surgery."——"Poliomyelitis Horse Serum: Its Preparation and Use" was the subject of Dr. Marcus Neustaedter before the Medical Society of the County of New York, November 24.——Dr. Cary Eggleston addressed the South Brooklyn Medical Society, November 20, on cardiovascular diseases.——Dr. James William Hinton addressed the New York Surgical Society, November 26, on "Bleeding Gastric and Duodenal Ulcers."——The Pan American Medical Association, New York chapter, was addressed by Drs. John B. Deaver, Philadelphia, on "The Pancreas," and Ernst Herzfeld, Buenos Aires, "Surgical Treatment of Echinococcus of the Lung."

PENNSYLVANIA

Society News.—At the annual conference of component society secretaries, December 2, Pittsburgh, addresses were made by Drs. Harold L. Foss, Danville, on "Hospitals as Educational Centers," and William H. Ross, Brentwood, president of the Medical Society of the State of New York, "A New Force in Organized Medicine." Besides the secretaries of the county societies, the editors of their bulletins and the officers and trustees of the state society were present.

Philadelphia

Coordination in Tuberculosis Work.—The formal opening of the headquarters of the newly organized Philadelphia Association of Tuberculosis took place, September 29. The association includes twelve city and eleven private institutions. This marks the first coordination of the work of all of its chest clinics. The organization is the result of a report made by Dr. Haven Emerson, New York, following a survey of Philadelphia hospitals and health. It was pointed out that there were duplications of the work of tuberculosis clinics in some sections of the city, while less adequate results were being accomplished in other sections. The association will define the areas in which each clinic will operate in order to facilitate the attendance of patients for examination and treatment. A definite limit will be placed on the duplication of work done by clinics and nurses. The organization will develop a system of referring patients from clinic to clinic for the convenience of employed patients who need to go to night clinics. The object will be to keep patients under observation until satisfactorily cared for in either a sanatorium or a hospital and to observe them further after their return from such institutions.

TENNESSEE

Special Training for County Health Officers.—Five doctors of medicine, four of whom expect to enter public health work in Tennessee, are now engaged in a twelve weeks' graduate course in preventive medicine in Vanderbilt University. They are Drs. William C. Sanford, Ripley; Preston H. Edwards, Jr., Darlington, S. C.; Hainan C. Busby, New Albany, Miss.; John Y. O'Daniel, Laurens, S. C., and Alfred Larson. The university course, consisting of six weeks, will be supplemented by field training in county health departments. The course is offered every October and April and covers all branches of public health work.

Society News.—The Nashville Academy of Medicine was addressed, November 4, by Dr. Robert F. Lischer, Mascoutah, Ill., on "A Pen Picture of the Country Doctor."——The Robertson County Medical Society was addressed in Adairville, Ky., October 28, by Drs. Samuel C. Cowan and Harrison H. Shoulders, Nashville, on "Rectal Analgesia in Obstetrics" and "Cholecystitis," respectively.——The Chattanooga and Hamilton County Medical Society was addressed, among others, recently by Dr. John Marsh Frere on "The Roentgen Ray in Traumatic Surgery."——Dr. Roger N. Herbert addressed the Davidson County Medical Society, October 21, on "Reflex Pain with Reference to the Rectum"; Dr. Thomas Fort Bridges addressed the society, November 11, on "Premature Infants: A Report of 118 Cases."——"Mediastinal Tumors" was the subject of an illustrated address before the Hardin, Lawrence, Lewis, Perry, Wayne Counties Medical Society, October 28, by Dr. Ray C. Bunch, Nashville, and "Placenta Praevia" that of Dr. Paul H. Faucett, Columbia; Dr. Granderson H. Bradley, Nashville, spoke on "Consideration of Some of the Common Ailments of Children."

TEXAS

Society News.—The Dallas Academy of Ophthalmology and Otolaryngology was addressed, December 2, by Drs. John O. McReynolds on "Optic Neuritis," and Charles P. Schenck, Fort Worth, "Intracranial Complications of Mastoid and Sinus Infections."——The Texas Pediatric Society was addressed at Fort Worth, October 28, among others, by Drs. *Herman P. Radtke*, Fort Worth, on "Orthopedic Treatment of Poliomyelitis," and Roy P. Forbes, Denver, "Use of Vaccines in Treatment of Children."——The Dallas County Medical Society conducted a symposium on peptic ulcer, September 25, the speakers being Drs. Gilbert E. Brereton, Harry G. Walcott and Charles W. Flynn, all of Dallas.——Dr. Gilbert E. Haslam, Ranger, addressed the Eastland County Medical Society, October 6, on "Middle Ear Infections."——"Clinical Importance of Nonsurgical Biliary Drainage" was the subject of Dr. Atmor S. Holley, Houston, before the Harris County Medical Society, September 30.——The Hidalgo County Medical Society was addressed, October 9, by Drs. Jason E. Montgomery, Weslaco, and William E. Whigham, McAllen, on "Paranasal Sinusitis" and "Cancer of the Cervix," respectively.——"Intravenous Urography with Uroselectan" was the subject of Dr. Eugene V. Powell, Temple, among others, before a recent meeting of the Lavaca County Medical Society.——Drs. Allen T. Stewart and Frank B. Malone, both of Lubbock, addressed the Lubbock-Crosby Counties Medical Society, October 7, on "Oxytocics, Past and Present" and "Lipiodol in the Diagnosis of Chronic Mastoiditis," respectively.——Dr. D. Leon Sanders, Wills Point, addressed the Van Zandt County Medical Society, October 3, on insanity, and Dr. Frank L. Lee, Ben Wheeler, presented a case report on quinsy.——The Second District Medical Society was addressed, among others, October 6-7, by Drs. Charles L. Martin, Dallas, on "Uterine Hemorrhage Without Demonstrable Pathology," and Ray M. Balyeat, Oklahoma City, on "Diagnosis and Treatment of Allergic Diseases," illustrated.

WEST VIRGINIA

"Dr." Bancroft Leaves Town.—Representatives of the West Virginia Medical Association have exposed a "Dr." C. Bancroft, who, in September, rented an office in Charleston, explaining that he was not a practicing physician but had agents who sent in customers for his electromedical appliances. One patient is said to have paid Bancroft $125 for "some extra special pills that had been put up in Germany and which could not be obtained anywhere in this country." The patient became violently ill, and the exposure of Bancroft followed. On being exposed, he left town. Physicians are advised to be on the lookout for "Dr." Bancroft, who may be operating under another name among foreigners. He is reported to be about 53 years of age, five feet eleven inches tall, weighing about 140 pounds. He has sandy hair and complexion and a rather anemic appearance. He looks like an American and speaks good English, but he also speaks other languages. He smokes cigarets constantly, and walks with a cane.

GENERAL

Openings for Interns.—The Hospital for Joint Diseases, New York, has announced six openings in house staff appointments for two years, rotating service in the various branches of practice. At the completion of the two years' service, graduating interns are eligible for the Frauenthal Travel Scholarship of $2,400 a year for six months' study in the leading clinics of Europe and six months' study in the United States, and the Mr. and Mrs. Frederick Brown Research Fellowships, with an income of $4,800, providing an award of $2,400 each to two successful candidates. Applications should be made to the director of the Hospital for Joint Diseases, Madison Avenue and One Hundred and Twenty-Third Street, New York.

Decline in Infantile Paralysis.—According to telegraphic reports from forty-six states and the District of Columbia to the U. S. Public Health Service, recently noted in the *United States Daily*, the "expected drop" in the number of cases of infantile paralysis has materialized. The disease has been continuously increasing since the middle of May, when twenty-six cases were reported, and reached the highest maximum in recent years during the week ended October 4, when a total of 647 cases was reported; the maximum number of cases, it was explained, reported for the calendar year 1929 was 146, and for 1928, 240. Of the 553 cases reported for the week ended October 11, Kansas still ranks highest with a total of 57. However, this represents a "notable decrease" from the 87 cases reported for the preceding week.

American Hospital Association.—At the thirty-second annual convention of the American Hospital Association, held in New Orleans, October 20-24, Dr. Lewis A. Sexton, Hartford, Conn., was installed as president; Mr. Paul H. Fesler, Minneapolis, was made president-elect, and Dr. Bert W. Caldwell, Chicago, was reelected executive secretary. The association now has 2,463 personal memberships and 1,426 institutional memberships. Interest centered around the series of round table discussions on group nursing as a means of reducing the cost of illness; the hospital's contribution to the advancement of scientific medicine, and the hospital's obligation to its local community. A new project of the association was the establishment of a research bureau on hospital development. In conjunction with this meeting was also held the fourteenth annual session of the American Occupational Therapy Association. Officers elected were Dr. Joseph C. Doane, Philadelphia, president, and Mrs. Eleanor Clarke Slagle, New York, secretary. The October 23 meeting of the Children's Hospital Association of America was addressed, among others, by Dr. Charles C. Hedges, New York, on the organization of a pediatric outpatient department, and Dr. Laurence R. DeBuys, New Orleans, the management of a children's service in a general hospital.

Syphilis Control Demonstration.—A report has been *recently made of the fifth syphilis control demonstration by* the Julius Rosenwald Fund cooperating with the North Carolina State Board of Health and the U. S. Public Health Service. The aim of the demonstration held in Pitt County, N. C., was an attempt to demonstrate the possibility of mass control of *syphilis in selected population groups, directed by Dr. John* J. Tyson of the state board of health. The population was assembled at certain centers on given days and hours. From April 1 to August 1, 10,198 primary Wassermann tests were taken throughout the county, including Greenville, of which *8,995 were negative and 1,203 were positive. Further taking* of Wassermann tests was discontinued because of the limit of the budget allowance and clinic staff. Wassermann tests were taken of family groups whenever possible, which accounted for the large number of cases examined at the age group 1 to 19 *years, which included 5,421 Wassermann tests, or 53 per cent* of the total number taken at the demonstration. Treatment centers were established at Bethel, Pactolus, Simpson, Ayden, Farmville and Greenville, with a clinic a week held at each place. About one fourth of the patients were treated Saturdays, *in the central clinic established at Greenville.* The average proportion of positive Wassermann reactions in Pitt County was 11 per cent, compared to 35 per cent in the demonstration at Macon County, Ala., previously. The comparatively low percentage of positive Wassermann reactions in Pitt County as compared with the Tuskegee, Ala., *demonstration shows* a wide difference in the intelligence and physical and social characteristics of the individuals. If the scope of the studies were enlarged to take in the entire Negro population of both counties, the total Negro population of Pitt County would probably show 2,840 positive Wassermann reactions in a Negro population of 24,000 and 7,000 population in Macon County. The fact that Pitt County has had a full-time health unit for many years and a state department of health is held responsible for the low incidence of the disease in this county.

PHILIPPINE ISLANDS

Leprosy in the Philippines.—Five hundred and fifty-three lepers were released on parole during the past year from the various hospital centers in the Philippine Islands. This makes a total of 2,013 released as negative *since 1922. In his annual* report as governor general of the Philippines, Dwight F. Davis stated, it is said, that the island government with the aid of the Leonard Wood Memorial for the Eradication of Leprosy is combating this once incurable disease with increasing success. Leprosy is still a serious problem, as one *third of the insular* appropriation of the health service is utilized in segregation and treatment of lepers. Treatment stations were opened during the year at Iloilo and in the Bicol region. A new one will soon be opened at Zamboanga, and the large station at Cebu is now functioning. The Leonard Wood Memorial, in addition to expending 360,000 pesos ($180,000) for the Cebu Leprosarium, released 285,000 pesos for use in Culion and 30,000 pesos for the erection of a skin clinic in Cebu. The Cebu station, with accommodations for 1,000 and facilities for the advancement of research in the treatment of disease, was made possible through a gift of Eversley Childs and is known as the Eversley Childs Treatment Station. His gift was largest, followed by $100,000 from John D. Rockefeller, Jr. With Culion, where 6,000 lepers can be accommodated, as the center of a campaign against leprosy, the general program of the memorial *organization contemplates the establishment of stations in vari-*

ous provinces and while fostering research in methods of producing and using chaulmoogra oil, improving the existing hospital facilities in Culion and Cebu, and assisting in the training and maintenance of a large staff of physicians and nurses to give treatment wherever it is needed in the islands.

CANADA

Personal.—Dr. Alfred K. Haywood has resigned as superintendent of the Montreal General Hospital, Montreal, to accept a similar position at the Vancouver General Hospital, Vancouver, B. C.

Osler's Memory Honored.—A magnificent stained-glass window and brass tablet were unveiled and dedicated to the memory of Sir William Osler in Trinity Church, Bond Head, September 30; the memorial was donated by the Simcoe County Medical Association. Osler was born in the old rectory, which stood one mile west of the church, and he was baptized in Trinity Church. The north transept of the church has been set aside as a memorial to the Osler family; Rev. Featherstone Lake Osler, the father of Sir William, founded the parish. Following the dedicatory ceremonies, the Simcoe County Medical Association convened in Orange Hall, Bond Head, where addresses were made by Drs. Fraser B. Gurd, Montreal, on "Modern Methods in the Treatment of Carcinoma"; Norman B. Gwyn, Toronto, compared the severe anginas of Osler's time with the coronary thrombosis of today, and Larimer J. Austin, Kingston, Ont., "Tuberculosis of the Kidney." The Osler oration was delivered by Dr. Campbell P. Howard, Montreal, who is the son of Osler's great teacher and companion, on the kindly relationship of Sir William to all with whom he came in contact.

Society News.—The Academy of Medicine of Toronto began, November 12, the second series of Wednesday afternoon lectures on subjects of special interest to the practitioner; Dr. Robert V. B. Shier spoke on that date on "Surgical Diagnosis and Differential Diagnosis of Acute Abdominal Conditions," and Hardolph Wasteneys, November 19, on "Vitamins"; future speakers and their subjects will be Drs. Andrew A. Fletcher, "Chronic Arthritis"; Arthur B. LeMesurier, "Osteomyelitis"; George E. Wilson, "General Principles in the Treatment of Fractures"; Alfred H. W. Caulfield, "Bronchiectasis, Its High Incidence in General Practice as Revealed by the Use of Lipiodol," and George R. Pirie, "Infant Feeding."——The eleventh Congress of the Association of French Speaking Physicians of North America, held in Montreal, September 16-19, was attended by between six and seven hundred delegates from Paris, London, Mexico and the United States. Features of the meeting were a visit to the St. Hubert Airdrome, where demonstrations were made of the medical side of aviation; clinical meetings at the Hotel Dieu and Hôpital St. Jean de Dieu; a demonstration of methods for thoracoplasty in tuberculosis by Dr. Edward W. Archibald, and a presentation of a plaque to Dr. D. Brochu, founder of the association. Dr. Brochu was for many years dean of the Faculty of Medicine of Laval University.

FOREIGN

Infant Mortality in Calcutta.—According to the *Weekly Bulletin* of the New York City Department of Health, the health officer of Calcutta reported for the year 1928 an unusually high rate of infant mortality. For the past ten years this rate has averaged above 300 per thousand live births. In 1928, out of 22,001 reported births, 6,138 infants died in the first year, a rate of 279 per thousand live births. In some new areas, the infant death rate was high; 207 infant deaths out of 385 live births, a rate of 539 per thousand; 219 infant deaths out of 514 live births, a rate of 426 per thousand, and 387 infant deaths out of 990 live births, a rate of 390 per thousand. Infant mortality is highest among the Mohammedans (393 per thousand) with Hindus second (261). It is lowest among non-Asiatics and Anglo-Indians; namely, 136 per thousand.

League of Nations Health Committee.—The sixteenth session of the League of Nations Health Committee, held September 29-October 7, was the first meeting of its reconstituted committee of eight new members out of a total of twenty-seven. Dr. T. J. M. Madsen, director of the Danish State Serum Institute, president of the Health Committee since its foundation in 1923, was reelected. The present position of the health organization was reviewed in the light of its ten years of activities. Among the branches of the league's health activities which passed through a period of study and collection of information before judgment was made and action started was the world-wide service of epidemiologic intelligence and public health statistics, and recommendations for combating malaria and the inquiry into infant mortality. The permanent standardization commission for devising and maintaining uniform international standards for the preparation and measuring of serologic and biologic products will be continued and kept up with the evolution of science, thought and method. The opium commission reported progress following the plans laid down by the Geneva Opium Conference of 1925. The leprosy commission has just completed a preliminary world survey. Partial surveys have been made of scarlet fever and diphtheria; continuation work will involve the fumigation of ships, special problems of infant mortality, especially in Latin America, smallpox, cancer and education in hygiene and preventive medicine. The activities concerning epidemiologic intelligence and a liaison with sanitary administration, particularly the system of interchanges or study tours for public health officers, formed the backbone of the health organization's work. The health committee appointed groups of experts to study, among other subjects, the proposal of the French government for the establishment of an international school of Advanced Health Studies in Paris, to be financed by an annual grant of one million francs. It was suggested by the league's system of study tours. The theoretical program will embrace general hygiene, an outline of the latest health knowledge and the organization and method of international health cooperation. Various scholarships and subsidies will be established. The council of the league will summon a European conference on rural hygiene at Geneva, April 23, 1931, at the suggestion of the Spanish government, on account of the importance of rural hygiene and agricultural reconstruction. In reporting the studies of the malaria surveys in India, it was said that this disease probably kills more than all other epidemics put together. As 90 per cent of India's population is rural, the crux of the problem lies in the 700 villages of this country. The cooperation of the Indian Health Service was commended. The report of the leprosy study in Europe, America and the Far East stressed the necessity of coopting the work of institutions and research workers over the world. In the health survey of Bolivia undertaken as assistance in the reorganization of its health service, the investigators traveled over an area three times the size of France and this included the experience of flying over the Andes at a height of 18,000 feet and their assistance to wounded citizens in street fights in the revolution. Other league projects were the antisyphilitic work in Bulgaria, inquiry into the health conditions of the Pacific Islands, the recommendations of the opium commission, and assistance in reorganizing the public health service in Greece.

Government Services

Army Personals

The following officers having been found by an army retiring board incapacitated for active service on account of disability incident thereto, and such finding having been approved by the President, their retirement is announced, effective October 31: Col. John L. Shepard, Majors Lewis Covington, Clinton L. Hoy and Daniel J. Hayes, and Capt. Kenneth G. Kincaid. Major Herbert H. Price and Capt. Francis E. Council will sail about February 4 and January 13, respectively, for duty in the Philippine Department; Capt. Seth Gayle, Jr., is assigned to duty in Alaska, effective in April, and Capt. Samuel Marcus to duty at Fort Benning, Ga.

Change of Station in the Navy

Lieut. Comdr. Erik G. Hakansson from the naval hospital, Pearl Harbor, T. H., to the naval hospital, League Island, Philadelphia; Lieut. Albert R. Behnke to the U. S. S. *Holland;* Lieut. Craig B. Johnson to the submarine base, New London, Conn.; Lieut. Comdr. Clarence W. Ross to the naval hospital, Pearl Harbor, T. H.; Lieut. Comdr. Victor S. Armstrong to duty involving flying, U. S. S. *Saratoga;* Lieut. Claude A. Angonnet from the Receiving Ship, San Francisco, to the naval training station, San Diego.

U. S. Public Health Service

Senior Surg. Hugh De Valin, relieved at Hot Springs, Ark., and assigned to duty at Ellis Island, N. Y.; Medical Director George L. Collins, relieved at Philadelphia, and assigned to duty at Washington, D. C.; Asst. Surg. Joseph O. Dean, relieved at Rosebank, N. Y., and assigned at Relief Station, Philadelphia; P. A. Surg. Joseph F. Van Ackeren, relieved at Naples, Italy, and assigned at Bergen, Norway.

Marriages

CHARLES PENNINGTON RYLAND, JR., Buena Vista, Va., to Miss Edith Elizabeth Finney of Washington, D. C., November 15.

ROBERT HOLMES LATIMER, St. Marys, Ont., Canada, to Miss Ruth Victoria Johnston of London, November 10.

CARL A. KARSH, North East, Pa., to Miss Ruth Lucille Pearson of Portville, N. Y., recently.

MAHLON C. HINEBAUGH, JR., to Miss Sidney E. Pollick, both of Philadelphia, September 3.

ARTHUR B. DAVENPORT, Pittston, Pa., to Miss Jessie Fassett of Tunkhannock, August 16.

MICHAEL H. BOLEY to Miss Florence Killilea, both of Milwaukee, November 25.

D. W. SHELLY, Ambler, Pa., to Mrs. Helen Edwards of Philadelphia, July 5.

Deaths

James Madison Kennedy ⊕ Brigadier General, U. S. Army, retired, Washington, D. C.; College of Physicians and Surgeons, Baltimore, 1892; entered the army as an assistant surgeon in 1893; advanced through the various grades to that of colonel in 1917; appointed brigadier general, assistant to surgeon general in 1927; served during the Spanish-American War; chief surgeon, division of Philippines, 1900-1902; formerly in command of the Letterman General Hospital, Presidio of San Francisco, and of the Army Medical Center, Washington; awarded the distinguished service medal during the World War; member of the American College of Surgeons; aged 64; died, October 15, in the Letterman General Hospital, San Francisco, of carcinoma of the pancreas with metastases to the liver.

Jonathan Currier, Grampian, Pa.; Kentucky School of Medicine, Louisville, 1881; member of the Medical Society of the State of Pennsylvania; for many years member of the school board; formerly member of the state legislature; aged 78; died, October 3, in the Clearfield (Pa.) Hospital, following an operation for intestinal obstruction.

William W. Perdue, Mobile, Ala.; University of Alabama School of Medicine, Mobile, 1908; member of the Medical Association of the State of Alabama, and American College of Surgeons; formerly clinical assistant in ophthalmology at his alma mater; served during the World War; aged 44; died, October 3, at Spring Hill.

Jean F. Wolfs ⊕ Newark, N. J.; Long Island College Hospital, Brooklyn, 1905; served during the World War; on the staffs of St. Barnabas Hospital, Newark City Hospital, Babies' Hospital and St. Michael's Hospital; aged 49; died, November 14, in Glen Ridge, of carcinoma of the pancreas.

Nathan Barlow ⊕ Hines, Ill.; Northwestern University School of Medicine, Chicago, 1902; since 1919 connected with the U. S. Veterans' Bureau; aged 54; chief of the medical staff of the Edward Hines, Jr., Hospital, where he died, November 24, of carcinoma of the pancreas.

Samuel Davis Wall ⊕ Port Arthur, Texas; University of the South Medical Department, Sewanee, Tenn., 1900; secretary of the Mary Gates Memorial Hospital; aged 54; died, August 20, in a hospital at San Antonio, as the result of injuries received in an automobile accident.

Lester Curtis, Chicago; Chicago Medical College, 1870; at one time assistant professor of physiology and professor of histology at his alma mater; on the staffs of the Cook County and Mercy hospitals; aged 88; died, November 23, of cerebral embolus and organic heart disease.

John Patrick Sweeney, Seattle; Medical Department of Columbia College, New York, 1882; member of the Washington State Medical Association; past president of the King County Medical Society; aged 73; died, September 29, of cerebral hemorrhage.

Eugene Brewster French, Jr., McComb, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1911; member of the Mississippi State Medical Association; aged 44; died suddenly, October 10, of angina pectoris.

Aurile Roy, Brockton, Mass.; University of Montreal Faculty of Medicine, Montreal, Que., Canada, 1905; member of the Massachusetts Medical Society; aged 51; died, October 25, of carcinoma of the sigmoid with metastasis to the liver.

Jairus Addison Joy, Easthampton, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1884; formerly on the staff of the Atlantic City (N. J.) Hospital; aged 76; died, October 24, of diverticulum of the bladder and sepsis.

Seth Smith Mullin ⊕ Bath, Maine; Medical School of Maine, Portland, 1908; formerly secretary of the Sagadahoc County Medical Society; on the staff of the Bath City Hospital; aged 47; died, August 18, of chronic nephritis.

Charles Walker Albert, Parkersburg, W. Va.; University of the South Medical Department, Sewanee, Tenn., 1899; member of the West Virginia State Medical Association; aged 58; died, October 3, of cerebral hemorrhage.

Hugh William Dicken, East Jordan, Mich.; University of Michigan Medical School, Ann Arbor, 1898; formerly mayor; served during the World War; aged 54; died, in October, at a hospital at Petoskey, of streptococcic septicemia.

Mather Humphrey Neill ⊕ San Diego, Calif.; Harvard University Medical School, Boston, 1909; surgeon, U. S. Public Health Service; aged 48; died, October 26, in Pittsfield, Mass., of myocarditis and dilatation of the heart.

Walter B. Holmes, Ada, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1894; member of the Minnesota State Medical Association; aged 64; was found dead, October 27, of heart disease.

Calvin Stuart White ⊕ Portland, Ore.; University of Oregon Medical School, Portland, 1894; past president of the state board of health; served during the World War; aged 60; died, September 25, of heart disease.

Alexander A. Cunningham, Denver; Miami Medical College, Cincinnati, 1880; member of the Colorado State Medical Society; aged 73; died, October 1, in the Porter Sanitarium, of myocarditis and chronic nephritis.

Robert Lee Sutton, Orrville, Ala.; Medical Department of Columbian University, Washington, D. C., 1889; member of the Medical Association of the State of Alabama; aged 66; died, in October, of heart disease.

Alexander Campbell Farr, Bloomington, Ind. (licensed, Indiana, 1897); aged 84; died, October 13, in St. Anthony's Hospital, Terre Haute, of hypertrophy of the prostate, arteriosclerosis and cardiorenal disease.

Joseph Thomas Woof ⊕ Chicago; Jenner Medical College, Chicago, 1906; on the staff of the West Suburban Hospital, Oak Park, Ill.; aged 57; died, October 24, of coronary thrombosis and arteriosclerosis.

Albert Linscott Stanwood, Andover, Maine; Medical School of Maine, Portland, 1876; member of the Maine Medical Association; served during the World War; aged 78; died, September 29, of pneumonia.

Lucy Maria Field Wanzer ⊕ San Francisco; University of California Medical School, 1876; for many years on the staff of the Children's Hospital; aged 89; died, October 13, of arteriosclerosis and hemiplegia.

Jonas Harrison Kauffman, Minersville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1862; Civil War veteran; aged 90; died, October 2, of arteriosclerosis and fracture of the hip.

William H. Wallace, Eureka, Calif.; Medical Department of the University of the City of New York, 1878; aged 78; died, August 9, in St. Joseph's Hospital, of acute hemorrhagic pancreatitis.

David Iley Payne, Pineville, La.; Memphis (Tenn.) Hospital Medical College, 1910; member of the Louisiana State Medical Society; aged 51; died, October 9, of coronary thrombosis.

Elmer Ellsworth Williams, Syracuse, N. Y.; Medical Department of the University of the City of New York, 1889; aged 69; died, in October, at the Crouse-Irving Hospital, of carcinoma.

Reuben Brooks Rasar, Johnson City, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1915; aged 47; died, October 2, of edema of the lungs and hepatic cirrhosis.

Charles Artman Ross, Queens Village, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1906; aged 48; died, October 13, of hypertrophic cirrhosis of the liver.

William Hayden Rockwell, Jr., New York; Medical Department of Columbia College, New York, 1892; served during the World War; aged 63; died, September 22, in Paris, France.

William Ralph Sifford, Nashville, Tenn.; Medical Department, University of Tennessee, Nashville, 1894; member of the Tennessee State Medical Association; aged 67; died, September 19.

Nathalie A. Selling, San Francisco; University of California Medical School, 1894; member of the California Medical Association; aged 63; died, October 1, of carcinoma of the breast.

Columbus Jefferson Pike, Willard, Mo.; Kansas City Medical College, 1892; formerly associate judge of the Greene County court; aged 69; died, in September, of lobar pneumonia.

Edward Joseph Walsh, Washington, D. C.; University of Tennessee College of Medicine, Memphis, 1925; aged 34; died, November 13, in the Mercy Hospital, Baltimore, of pneumonia.

Frank Leslie Barkdoll, Cumberland, Md.; Southern Homeopathic Medical College, Baltimore, 1902; aged 51; was found dead in his office, September 30, of organic heart disease.

Isaiah Miley, Anderson, Ind.; College of Physicians and Surgeons, Keokuk, Iowa, 1875; member of the Indiana State Medical Association; aged 84; died, October 23, of pneumonia.

Charles S. Curry, Beatrice, Neb.; Rush Medical College, Chicago, 1900; member of the Nebraska State Medical Association; aged 57; died, September 29, following an appendectomy.

Stuart Luthy Smith, Pittsfield, Ill.; Rush Medical College, Chicago, 1919; member of the Illinois State Medical Society; aged 37; died, October 21, of an accidental gunshot wound.

Virgil A. Baker, Marion, Ill.; St. Louis College of Physicians and Surgeons, 1903; member of the Illinois State Medical Society; aged 54; died, October 28, of heart disease.

Thompson Ribelin, Elizaville, Ky.; Louisville (Ky.) Medical College, 1880; member of the Kentucky State Medical Association; aged 71; died, October 11, of heart disease.

George M. Austin, Wilmington, Ohio; Medical College of Ohio, Cincinnati, 1883; member of the Ohio State Medical Association; aged 74; died, October 25, of heart disease.

Horace Oliver Wilson, Rison, Ark.; University of Arkansas School of Medicine, Little Rock, 1910; member of the Arkansas Medical Society; aged 46; died, September 4.

A. J. Lancaster, Pisgah, Tenn. (licensed, Tennessee, 1889); member of the Tennessee State Medical Association; aged 71; died, September 14, of senile gangrene of the left foot.

Verne Artemus Mann, Howard, N. Y.; University of Buffalo School of Medicine, 1906; aged 49; died, October 3, of acute myocarditis, asthma and dilatation of the heart.

John Tifft Beckwith ⊕ Atlantic City, N. J.; Homeopathic Hospital College, Cleveland, 1885; for many years police surgeon; aged 67; died, November 17, of angina pectoris.

Arthur Joseph Forward, Madison, N. Y.; Medical Department of the University of the City of New York, 1893; health officer; aged 59; died, September 27, of heart disease.

Davis L. Shaver, Maurertown, Va.; Baltimore Medical College, 1888; member of the Medical Society of Virginia; aged 66; died suddenly, in October, of heart disease.

Edward Louis Spitzer ⊕ New York; Bellevue Hospital Medical College, New York, 1892; on the staff of the Jewish Memorial Hospital; aged 60; died, September 18.

William Phelps Robertson, Litchfield, Minn.; Detroit College of Medicine and Surgery, 1912; county coroner; aged 43; died suddenly, October 21, of angina pectoris.

Raphael Monserrat y Marzo, Manila, P. I.; University of St. Thomas College of Medicine and Surgery, Manila, 1878; aged 79; died, August 27, of diabetes mellitus.

Henry Hinman Coleman ⊕ Mount Vernon, N. Y.; University of Buffalo School of Medicine, 1881; aged 71; died, October 8, of angina pectoris and myocarditis.

Burt Luverne Shaw ⊕ Troy, N. Y.; Albany (N. Y.) Medical College, 1904; on the staffs of the Samaritan and Leonard hospitals; aged 56; died, October 11.

Joseph Ira Coleman, Durham, N. C.; College of Physicians and Surgeons, Baltimore, 1885; aged 71; died, October 21, in the Duke Hospital, of heart disease.

William Henry Knapp, Binghamton, N. Y.; Long Island College Hospital, Brooklyn, 1874; aged 81; died, November 16, of arteriosclerosis, prostatitis and cystitis.

Curry F. Douglass, Toledo, Ohio; Medical Department of Western Reserve University, Cleveland, 1881; aged 71; died, September 20, in St. Vincent's Hospital.

Lewis Smith Hall, Augusta, Kan.; Bellevue Hospital Medical College, New York, 1878; aged 74; died, October 15, in Wichita, of carcinoma of the prostate.

Martin A. Walton, White House, Tenn.; Vanderbilt University School of Medicine, Nashville, 1886; aged 65; died suddenly, October 17, of heart disease.

Samuel A. Wideman, Spartanburg, S. C.; Medical College of the State of South Carolina, Charleston, 1899; aged 59; died, October 10, of heart disease.

Prosser Elwin Clark, Portland, Ore.; Indiana University School of Medicine, Indianapolis, 1909; aged 46; died, November 10, of rheumatic endocarditis.

Ernst Friedrich Flehme ⊕ Spokane, Wash.; University of Kiel, Germany, 1918; aged 38; died, October 19, in Frankfurt, Germany, of tumor of the kidney.

Henry A. Shurtleff, Marshall, Mich.; University of Michigan Medical School, Ann Arbor, 1879; aged 73; died, October 11, of cerebral hemorrhage.

James John Hoban ⊕ Lowell, Mass.; Jefferson Medical College of Philadelphia, 1907; aged 47; died, September 6, of neoplasm of the spinal cord.

Walter B. Hamby, Atlanta, Ga.; Atlanta Medical College, 1888; aged 64; died suddenly, November 6, in Winter Haven, Fla., of angina pectoris.

Thomas Walter Wood, Deason, Tenn.; University of Nashville Medical Department, 1870; Confederate veteran; aged 95; died, September 21.

Archibald J. Fulton, Long Beach, Calif.; Jefferson Medical College of Philadelphia, 1874; aged 84; died, September 10, of cerebral hemorrhage.

William A. Chamberlin, Waseca, Minn.; Rush Medical College, Chicago, 1882; also a druggist; aged 74; died suddenly, September 27.

Julia Holmes Smith, Chicago; Chicago Homeopathic Medical College, 1877; aged 91; died, November 10, in Winnetka, Ill., of myocarditis.

Charles A. Smith, Brooklyn; Long Island College Hospital, Brooklyn, 1891; aged 72; died, October 20, of acute dilatation of the heart.

Henry Hubert Powell, Stantonsburg, N. C.; Medical College of Virginia, Richmond, 1911; aged 44; died, October 14, of heart disease.

John C. Shepherd, New York; Medical Department of the University of the City of New York, 1891; aged 69; died, September 22.

Daniel R. Rogers ⊕ Ragan, Neb.; Jefferson Medical College of Philadelphia, 1880; aged 75; died, October 7, of appendicitis.

Preston Lee Hooper ⊕ Fort Worth, Texas; Memphis (Tenn.) Hospital Medical College, 1896; aged 59; died, September 16.

Thomas J. Hall, Caborn, Ind.; Cincinnati College of Medicine and Surgery, 1892; aged 68; died, October 4, of heart disease.

Alois Maria Renner ⊕ New York, Bohemian University of Prague, Austria, 1895; aged 63; died, in October, of heart disease.

Royse Davis, Decker, Ind.; Louisville (Ky.) Medical College, 1874; aged 82; died, October 29, of paralysis of the larynx.

Richard Ellsworth Townsend, New York; New York Homeopathic Medical College, 1882; aged 72; died, September 19.

Frank L. Wilcox ⊕ Walker, Minn.; Rush Medical College, Chicago, 1900; aged 53; was found dead in his office, August 29.

Abner George Downer, De Witt, N. Y.; New York Homeopathic Medical College, 1882; aged 74; died, October 25.

Mary L. Edwards, New York; New York Medical College and Hospital for Women, 1890; aged 70; died, September 3.

Warren A. Kitchen, New Market, Iowa; Homeopathic Hospital College, Cleveland, 1890; aged 67; died, September 23.

Jesse Edward Martin, La Center, Ky.; St. Louis College of Physicians and Surgeons, 1896; aged 61; died, September 16.

Peter J. Stammer, Victoria, Texas; Homeopathic Hospital College, Cleveland, 1880; aged 78; died, September 13.

George Lewis Lininger ⊕ Frostburg, Md.; Baltimore Medical College, 1902; aged 57; died, September 22.

Ralph Elmergreen, Milwaukee; Baltimore Medical College, 1892; aged 60; died, September 15, of heart disease.

John Hunter, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1875; aged 79; died, July 19.

John W. Dunlop, Clare, Mich. (licensed, Michigan, 1900); aged 73; died in October, of uremia.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 15, 1930.

Limitation of Manufacture of Narcotic Drugs

A conference of the government representatives of countries manufacturing dangerous narcotic drugs has sat in London for a fortnight. A report is being submitted to the British government, which convened the conference, for communication to the governments represented and to the League of Nations. A scheme for the limitation of the world manufacture of these drugs was set on foot by the assembly of the league in September, 1929, and will, it is hoped, be completed by adoption of an international agreement at the general conference to be held at Geneva in May. The main business before the London conference was to consider the proportions in which the world manufacture, when limited to the amount required for the world's medical and scientific needs on the basis of the estimates to be supplied by each country, should be distributed among the manufacturing countries and, secondly, the arrangements to be made to insure the due distribution of the drugs in the consuming countries. As regards the quotas for the manufacturing countries, the conference was not able to complete its investigations, but a provisional arrangement was reached as regards the production of cocaine. As regards morphine and its derivatives, the question is to be considered by representatives of the governments concerned with a view to an agreement before the meeting of the opium advisory committee of the league in January. The scheme of the conference leaves unaffected manufacturing countries that do not export drugs to an appreciable extent, such as the United States and Russia. At present the scheme does not cover either Japan or Turkey, both of which have reserved their decision as regards the scheme. A reservation was also made by the soviet government, which considered that the plan on which the league has been working was too narrow and should have included limitation of the production of the raw material (opium and the coca leaf) from which the drugs are manufactured.

Employment of Physicians by the Government

Evidence was given before the government commission of the civil service as regards the employment of physicians by the government. Dr. Thomas Carnwarth, representing the medical staff association of the ministry of health, pointed out that there had been an important change in the economic position of the medical profession, which had an inevitable effect on the payments that public authorities had to make for medical services. This was due to two causes. Under the national health insurance act, medical attendances per annum had been doubled as compared with 1912; secondly, the increase of the practice of preventive medicine had its effect. On the other hand, the supply of physicians in proportion to the population had declined. Hence public authorities had to offer higher salaries to attract physicians of the same standard of attainments. It was no use for the government to offer a middle-aged man a salary half of what could be earned by a younger man in practice. With regard to women physicians, he doubted whether the removal of the marriage bar (the loss of their appointment on marriage) would improve the quality of women physicians seeking entry to the government service.

A Trap for the Tsetse Fly

Mr. Harris, government entomologist, who has been investigating in the Zululand game reserve methods for the control of nagana, the tsetse-borne cattle disease, gave a demonstration before leading entomologists of his recently devised tsetse trap. He satisfied himself that the tsetse fly hunted entirely by sight. He found that it was attracted to roughly shaped dummy animals, that it usually attached itself to the belly, and that it reacted to contrasts of light and shade. The trap consists of a wooden frame on legs, covered with hessian cloth except at the bottom, and having a gauze trap at the top. It is shaped sufficiently like a living animal to attract the fly. Swooping toward the lower part of the trap, the fly comes within the hessian walls and, attracted by the light coming through the gauze above enters the trap. For the demonstration eighteen traps were set and at the end of the day were found to contain 1,393 flies, of which 942 were females. A most effective demonstration was the release of a number of flies from the trap, practically all of which found their way into it again. As the fly is not a prolific breeder, it is considered that an adequate number of traps would make marked difference in the fly population of Zululand.

An Archbishop on Birth Control

The pronouncement on birth control in the encyclical letter of the seventh Lambeth conference of the archbisphops and bishops of the Church of England was reported in THE JOURNAL, September 20, page 874, and the criticisms to which it gave rise. The extent to which the subject has become prominent is shown by the fact that at the convocation of Canterbury of the Church of England, just held, the Archbishop of Canterbury returned to the subject. He said that what was loosely called birth control had unfortunately attracted a large share of attention of the public mind. He complained that the pronouncement of the Lambeth conference had been misrepresented. It was open to the conference to ignore the whole subject, but that would have been impossible in the presence of a growing almost revolutionary change in the customs of married life throughout the world, causing a fall of 50 per cent of the world's birth rate. The great majority of the bishops approached the matter with a strong prejudice against any artificial means of controlling the birth of children, but they could not divest themselves of their sense of responsibility. The conference declared that it was wrong to enter the marriage state with the deliberate intention of avoiding parenthood, but it was compelled to recognize that in certain circumstances there might be a moral obligation to control the number and spacing of children—when birth would involve great danger to the mother, when the means available might make it impossible to provide for the rearing of another child, or when the mother might be prematurely exhausted and an additional child render her incapable of doing her duty to the existing family. The resolution of the conference said that in such circumstances the primary and obvious method was to abstain from intercourse. But it was also universally admitted that intercourse had a value of its own whereby married love was enhanced and its character strengthened and that complete abstinence might induce nervous disorders. In such exceptional cases was the artificial avoidance of conception sinful? There was no clear guidance on the point in the New Testament. The conference was therefore unable to condemn artificial methods in themselves as sinful, but insisted that their use was permissible only in exceptional cases. It condemned their use from motives of selfishness, luxury or mere convenience and asserted their absolute sinfulness apart from the married state.

Dr. Chevalier Jackson in London

Dr. Chevalier Jackson of Philadelphia delivered a lecture on suppurative disease of the lungs to the Royal Society of Medicine. The large lecture hall was overfilled by an appreciative audience. The lecture was illustrated by lantern slides and drawings on the blackboard in colored chalks, which were executed by Dr. Jackson with such skill as to excite admiration. Lord Moynihan, in proposing a vote of thanks, said that Dr. Jackson's skill with the pencil reminded him of the great

Giotto of the Italian renaissance, who sent as his card to the Pope a perfect circle drawn by a free sweep of the brush from the elbow. The president and council of the section of laryngology of the society gave a dinner in honor of Dr. Jackson. The president, Mr. Frank A. Rose, in proposing his health, suggested that he would not be remembered in future generations so much for his success in operating on the larynx for carcinoma or for his dexterity in removing foreign bodies as he would be compared to Elias Howe, who invented the sewing machine. Howe showed the world that the eye of a needle ought to be at its point and Jackson taught it to place the light of a bronchoscope at its tip. Dr. Jackson, in reply, referred to his father, who was born 100 years ago at Hull and sailed to the United States, never to return to England. He felt how this splendid welcome would have delighted him. It had been suggested that he might speak on the making of a bronchoscopist but that a bronchoscopist was born, not made.

PARIS

(From Our Regular Correspondent)

Nov. 5, 1930.

Fund for Promotion of Science, Literature and Art

The French minister of public instruction has decided on the creation of a national fund for the assistance of intellectual workers. Its purpose will be to supply financial aid for the carrying on of disinterested scientific researches, to furnish funds to laboratories or to create laboratories, and to accord grants or loans to scientists or aid in old age to themselves and their families. The funds will be furnished by government grants, public subscriptions and donations by large industrial, commercial and banking establishments. The fund will be entirely independent of the ministry and will be free from political interference. It will be administered by a council the members of which will be appointed by the minister and will be chosen from among eminent persons and representatives of all important educational bodies, of universities or otherwise, and of academies.

Intravenous Injections of Sodium Salicylate in Neuropsychopathic States

Dr. Targowla, physician to the Hôpitaux de Paris, has published a survey of intravenous injections of sodium salicylate in neuropsychopathic states. As a result of his experience over four years, he holds that, in a great number of psychoses, particularly acute psychoses, in which the cerebral disorder was regarded as purely psychologic, there is a toxic, infectious substratum, referable to encephalitis. He classifies such neuroses under the name of psycho-encephalites (March, 1928), having in mind not only such states as acute delirium, acute mental confusion, certain grave forms of the Korsakov syndrome, and the like, of which the organic nature and the lesions have long been known, but also essential psychoses, "without pathologic anatomy," according to the expression of Mr. Maurice de Fleury, such as anxiety neurosis, polymorphous delirium and chronic hallucinatory psychoses. This conception led him to practical results of great interest; for to these diseases mentioned, hitherto all too often rebellious to treatment, a new treatment can now be applied (depending on the infection), which gives excellent results. The new treatment consists in intravenous injections of sodium salicylate, reinforced sometimes by methenamine dissolved in serum containing dextrose, in order not to injure the walls of the vein. He secured good results in 60 per cent of the cases. The treatment brings about remarkable sedation in persons suffering from mental excitement. If the treatment is stopped too soon, the mental excitement reappears immediately, and disappears when the treatment is resumed. Its specific action is, therefore, beyond doubt. The Targowla method has been employed in Brazil by Pedro Rosa, Jacintho Godoy and others. They confirm its value and report 70 per cent of practical results. It is especially in states mistakenly termed neurasthenic, in mental confusion, mania, acute delirious states and puerperal insanity that the proportion of good results is highest; the results are, however, uncertain in chronic psychic disorders. Targowla stresses the practical character of the method, which has enabled him to treat ambulatorily, and in their homes, patients who, because of their noisy and violent reactions and their ideas of suicide, would soon have been confined in an institution. The results have been brought out especially in periodic psychoses, in which there was an opportunity of making comparisons of the course in the several attacks. Patients otherwise compelled to spend long periods in an institution may be cared for at an ordinary hospital or at home, by their family physician, and in most cases will find their mental condition vastly improved.

The Centenary of a Medical Journal

The *Journal de médecine et de chirurgie practique*, founded by Just-Lucas Championnière, Jan. 8, 1830, celebrated recently its centenary. It is the next to the oldest medical journal published in France, the oldest being the *Gazette des hôpitaux*, founded in 1817. In 1874, following the death of the father, the management was taken over by the sons, Just-Lucas Championnière and Paul-Lucas Championnière. The former was an eminent surgeon, who introduced in France the Lister method after going to London to study its operation on the ground. He died in 1913, surgeon to the hospitals and member of the institute, universally esteemed for the integrity of his character. On the death of the second brother in 1918, his son, Paul Henri Lucas Championnière, succeeded him, but he died in 1922, having been killed in an automobile accident. His cousin, Just, a son of Paul, is the present manager. It is rather unusual for the management of a medical journal to be kept in the same family for a hundred years. In honor of the occasion, the management gave a banquet for the principal members of the French medical press and also published a centennial number containing selected articles by eminent men: "Tradition and Progress," by Professor Chauffard; "The Surgical Work of Lucas Championnière," Professor Quénu; "Some Reflections on Appendicitis over a Period of Fifty Years," Professor Roux of Lausanne; "Traumatic Rupture of the Duodenum," Professor Giordano of Venice; "The Medical Treatment of Inguinal Hernia and the Pioneer Work of Lucas Championnière," Professor Forgue of Montpellier; "The Digestive Manifestations of Oxalemia," Professor Loeper and M. R. Deglos, and an article by Professor Leriche of Strasbourg on "Isolation of the Mesenteric Artery at the Beginning of Gastrectomy in the Presence of Cancer."

Death of Dr. Henri Delagénière

The death of Dr. Henri Delagénière at the age of 73 is announced. He was born at Angers and came to Paris to complete his studies in medicine, under the direction of Monod, Lucas Championnière and, more particularly, Terrier, of whom he was the favorite pupil. He was one of the first of the eminent surgeons, trained in Paris, who decided to renounce a brilliant future in the capital and to settle in the provinces and found there surgical centers, which were totally lacking other than in Lyons and Bordeaux. He established himself in Mans and created there a magnificent clinic. He founded there also the *Archives provinciales de chirurgie*. He was the author of many important works. They concern abdominal total hysterectomy, cholecysto-enterostomy, and surgery of the lung. He introduced, during the war, a method for osteoperiosteal grafts that has become classic. In 1910, he was president of the Congress of Surgery. On the day of the opening of the Société de chirurgie, Professor Gosset delivered a beautiful eulogy in his memory.

BELGIUM

(From Our Regular Correspondent)

Nov. 4, 1930.

The Brussels Medical Convention

The Brussels medical convention, the so-called Journées médicales, was an unprecedented success this year, because of the nature of the ceremonies and because of the number and importance of the papers presented by authorities from every country. Minister Baels opened the inaugural session in the presence of the king and the queen, and in his presidential address brought out the beneficial results of preventive medicine. Professor Bordet and Prof. J. L. Faure delivered inspiring addresses, the former discussing prophylactic and therapeutic medicine and the latter the progress of surgery.

A NEW CONCEPTION OF ANEMIA

Dr. Casimir Funck of Warsaw, who presented a paper on "A New Conception of Anemia," reported experiments on rats weighing at least 150 Gm. The rat weighing less than 50 Gm. is always anemic. This anemia of growth disappears when animals attain a weight of 150 Gm. Daily he injects a dose of antianemic substance, calf's liver and yeast, in a pure state at first, then treated successively with various substances, such as lead acetate, alcohol and trinitrophenol. Every two days, he makes a cell count on the blood taken from the end of the tail. It is found that yeast and liver, administered in rather heavy doses, cause at first a drop in the red corpuscles, which is followed by a slow increase. If these substances are treated successively with lead acetate, alcohol and trinitrophenol, and each time the precipitate and the filtrate obtained are injected, the precipitate causes a drop in the cell count, whereas the filtrate brings about an increase in the number of red blood cells. Mercury picrate, acting on the substances thus transformed, produces then a new filtrate, the action of which is complex, being expressed by a curve with a double turn. The author concludes that there must be two antagonistic substances in liver and yeast, one of which causes anemia while the other combats it. If a process can be discovered for the isolation of the antianemic substance from this compound, the treatment of anemias will have taken a step forward.

INCIPIENT DIETARY DEFICIENCY IN THE CHILD

Prof. Georges Mouriquand of Lyons dealt with the topic of incipient dietary deficiency in the child. Whereas the characteristic manifestations of dietary deficiency as observed in rickets, xerophthalmia, beriberi and scurvy are rare, incipient states of dietary deficiency are frequent. In rickets, long before the clinical and roentgenographic signs appear there are disturbances of calcium and phosphorus metabolism. The clinical ocular lesions of xerophthalmia are preceded by microscopic lesions distinguishable with the Gullstrand ocular microscope. Scurvy is rare, though prescurvy is frequent: retarded gait, asthenia and, more particularly, pallor and anemia, conditions that recede rapidly with the use of fluids rich in vitamin C. The researches of the author have enabled him to determine a number of factors that cause the organism to pass from a state of incipient dietary deficiency to a state of evident dietary deficiency: (1) the unbalanced nature of the diet (in addition to the deficiency in vitamin C); (2) augmentation of nutritional activity (by the administration of thyroid extract). It has been found that a relative inanition, brought about by means of a defective diet, is not favorable to the evolution of typical scurvy, which develops rather when the diet is improved. For scurvy to develop, *the child must be in a state of sufficient nutrition.* In general practice—especially in children—one encounters more frequently the complex that the author terms incipient dietary deficiency. Children on an artificial diet are in a state of latent disequilibrium; the slightest cause may bring about a condition of marked deficiency.

SINISTROSIS

Dr. Julliard of Geneva, after recalling Brissaud's definition of sinistrosis, reported the results of his experiences in Switzerland as to the various ways of handling these cases of neurosis arising out of claims for compensation. The determining cause of this disorder, according to Julliard, is the law pertaining to occupational accidents, which causes the injured man to conjure up a vision of the pecuniary gain that he might draw from his accident. The best way to cure sinistrosis is to place the subject in a situation in which he can claim nothing and hope for nothing. Therefore, he should either be allowed a single lump sum by way of complete compensation or he should be refused categorically all indemnity, since sinistrosis is not a compensable disease, and should thus be compelled to resume his work. While the allocation of a certain sum of money may be more humane, it has the great disadvantage, says Julliard, of establishing a bad precedent—of producing contagion, so to speak, when prophylaxis is indicated. The speaker recommended, therefore, the categorical refusal of all compensation, and, by citing a number of examples, endeavored to refute the objections urged against his system. Julliard began, seven years ago, a campaign against the granting of compensation in cases of "sinistrosis," and he states that the results have been entirely satisfactory.

THE NEW CYTOLOGY

Dr. Carrel of New York, in his paper on "The New Cytology," brought out that the present-day conception of cytology, from the standpoint of the technic of the science, is essentially morphologic. An interesting point of view at present, however, is the study of cell development as a time function and from the angle of its physiologic mechanism. Such study has of late become possible through the cultivation of tissues, which notably has enabled the researcher to follow the modifications effected in the vitality of the cells by the changes in their external surroundings. These results have been secured only by improvements in technic, whereby it has become possible to study cytologically tissue fragments in process of growth. The essential requirement for the conservation of tissue cultures is to maintain their milieu constant. Under such conditions, they can be preserved for a considerable length of time. Carrel stated that he had cultures of connective tissue of chicken embryos dating back eighteen years. Some remarkable results have already been secured by the observation and chemical study of the milieu of cultures of various tissues; notably, various types of fibroblasts. These elements, similar in their histologic structure, have been found to vary in the morphology of their cultivation, in their growth activity and in their diverse nutrition. The pure cultures of tissues are secured either by the selection of tissue fragments under the binocular microscope or by chemical action and the suppression, from choice, of certain kinds of tissue. Thus, some knowledge of the fundamental nature of malignity in certain tumors has been secured—which corresponds to certain profound modifications in the mode of nutrition of the cultures of malignant tissues studied. Interesting facts have been learned also from the action of certain plasmas on the cultures in relation to senility.

PRESENT-DAY TENDENCIES IN OBSTETRICS

Prof. Maurice Brouha of Liége presented a paper on "Present-Day Tendencies in Obstetrics." After calling to mind the period when obstetrics was regarded as the "poor relative" of surgery and medicine, he painted a picture of its present state. The obstetric clinic has been greatly enriched by laboratory discoveries; by the progress of surgery and the contributions of modern sociology. Of the most frequent *morbid* entities, puerperal infection has imposed a severe technic, which finds its application best assured in a surgical milieu, which permits a thorough training in the principles of asepsis and antisepsis; also the development of the surgical temperament, so indispensable for the obstetrician. Cases of narrow pelvis give the best proof of his obstetric sense. The tendency to surgery is encountered with respect to operations for placenta praevia, 10 per cent of which are fatal for the mother and 50 per cent for the unborn child; in view of the hazards of the operation, it would be unwise to resort to a waiting policy other than in a hospital or clinic. In eclampsia also modern tendencies are observable. The older method of forcing birth by natural means is giving way to expectant and medical methods, and even to surgical methods, when the life of the child is at stake.

It is evident that the obstetrician of today must possess the highest medical and surgical ability, such as can be acquired *only by a long graduate preparation under select conditions.*

At this time, when the newly introduced social system is planning to cover the risks of maternity as well as of disease, the interesting question arises as to who shall bear the chief responsibility and as to what will be the rôle, in the future, of *the midwife, the general practitioner and the obstetrician.*

THE TUBERCULOUS ULTRAVIRUS AND BACILLARY INFECTION

Professor Calmette of Paris took as his subject "The Tuberculous Ultravirus and Bacillary Infection." In addition to permanent ultraviruses, there are others that are in reality only a phase in the morphologic evolution of a micro-organism; for instance, the virus of pleuropneumonia in bovines. Fontes of Rio de Janeiro was the first (1910) to observe that pus from tuberculous lesions in man, when filtered and inoculated into the guinea-pig, causes a slight swelling of the lymph glands, which are found to contain a few tubercle bacilli. The publication of this experiment attracted little attention. Twelve years later, in 1922, Vaudremer discovered, in cultures of tubercle bacilli grown in a poor medium, certain granular forms and secured, through filtration of these cultures, a fluid that, inoculated into the guinea-pig, produced a glandular swelling, and later small caseous masses, some of which contained acid-fast granulations which, when implanted in a favorable culture medium, yield normal bacillary forms. No others, however, were able to verify this experiment.

In 1923, Valtis, working in the Calmette laboratory, took up the experiments of Fontes and confirmed them. The inoculation into the guinea-pig of a filtrate of tuberculous material produces an atypical tuberculosis. On the tenth day, a slight swelling of the lymph glands is observable, and these are found to contain rare acid-fast bacillary elements. Reinoculation in series of animals of the content of these glands often produces, after six or seven passages, typical tuberculous lesions containing genuine tubercle bacilli. This atypical tuberculosis of the guinea-pig can be produced with the filtrate of young cultures or of pathologic products the tuberculous nature of which was not fully demonstrated. The discovery of the tuberculous ultravirus has had important consequences for the study of alleged hereditary tuberculosis. If one inoculates such filtrates into gravid guinea-pigs, the organism of the young offspring is found to contain the ultravirus, which must have passed through *the placenta. Likewise, in the human species, from 9 to 12 per* cent of the children born of tuberculous mothers die during the first weeks of life, presenting a syndrome characterized by progressive denutrition, without visible lesions at necropsy. The inoculation into the guinea-pig of the product derived from their lymph glands reveals the presence of the tuberculous ultravirus. Their deaths appear to be due to an intoxication that accompanies the presence of the ultravirus and that damages in some way the nervous tissue.

After long research, Calmette has succeeded in cultivating the ultravirus on a special culture medium. In this culture, after the lapse of a few hours, fine non-acid-fast granulations are found; then larger granules, some of which are acidophilous, and finally true bacillary forms appear. Intravenous inoculation into the rabbit of such a culture ten days old causes death within forty-eight hours, with paralysis of the posterior or anterior limbs. The culture contains, therefore, a thermolabile toxin that does not appear until the tenth day, the time the granulations disappear, and seeming to be produced by the lysis of these granules. It is probable that the death of the new-born, since it presents the syndrome of progressive denutrition, is due to this special toxin that forms at a given moment in the maternal organism.

These conceptions *necessitate a revision of our ideas in regard* to the pathogenesis and evolution of tuberculosis. The tubercle bacillus is only a terminal form of the evolution of the tuberculous virus. There are doubtless pathologic conditions due exclusively to the ultravirus. They might possibly be well termed "prebacillary granulemias," for most of them may lead to typical tuberculosis. Those conditions that are due to the tubercle bacillus should be termed "bacilloses." Between these two groups, there is a place for diseases in which the bacilli do not appear until the terminal phase, and then only in small numbers.

BERLIN

(From Our Regular Correspondent)

Nov. 10, 1930.

A Movement to Aid Diabetic Patients

Among the principal changes that the discovery of insulin has brought is the fact that a much larger percentage of diabetic patients regain their capacity for work. A still greater proportion could regain such capacity if they received proper care. The possibility of recovering fair physical health and almost normal working performance exists today for a much larger number among patients with mild diabetes than formerly. More attention should be given, therefore, to the social side of treatment. But it is evident that far less is being accomplished with diabetic patients than should be attained in view of the means now at the disposal of physicians. It is astonishing how few diabetic patients after dismissal from the hospital keep themselves in metabolic equilibrium, succeed in finding employment, and are able to hold a position any length of time. For these medical and social reasons, Professor Katsch, internist, of Greifswald, was instrumental in having a special convalescents' home for diabetic patients opened in Garz auf Rügen, Pomerania, September 17. Diabetic patients who are out of immediate danger can remain in the home shorter or longer periods, depending on the indications, and while there will be under careful guidance with respect to their metabolism and will receive individual attention in the quantitative and qualitative apportionment of their food. Through individual occupational therapy they become familiar with modes of employment that correspond to their physical capacity. At the same time, their power of performance is tested and classified in connection with a constant control of their metabolism. The correct diet adapted to the individual and suited to the work performance is determined, which can be done more easily in the home than in the hospital. The patient receives not only instruction as to correct dietetic behavior but also as to the extent that he can safely work. The careful control of metabolism and diet, carried out over a period of several weeks or months, leads, at the same time, to a restoration and strengthening of the defective functions, to an improvement of the status of metabolism, and to an increase in the capacity for work. In order that the patients, after their dismissal from the home, may be able to maintain themselves permanently in the struggle for existence, an individual vocational guidance bureau and occupational aid have been established in which endeavor several official bodies cooperate. The home for diabetic patients is a public charitable institution, comprising a residence with forty tastefully furnished rooms, an administration building, stables, workshops, a landscape garden and an agricultural plant. It can house comfortably sixty patients.

The work of the diet kitchen is facilitated by the fact that the cuisine is planned almost entirely for patients with diabetes. Even a number of the personnel have the disease. Instruction in the dietetic preparation of food for diabetic patients, especially instruction for diabetic women and for the wives of diabetic men, is provided. The introduction of occupational therapy gives the institution an especially modern character. Occupational therapy is under the intimate control of physicians.

Roentgenologic Demonstration of Liver and Spleen

Addressing the Berliner Medizinische Gesellschaft recently, Dr. Radt, on the staff of the Moabit Hospital, discussed "Roentgenologic Demonstration of Liver and Spleen with the Aid of a New Contrast Medium." By the intravenous injection of a thorium dioxide solution, which is deposited in the reticulo-endothelial apparatus, Radt succeeded in bringing out clearly in the roentgenogram both the liver and the spleen as organs presenting uniform shadows. The diagnosis of cancer metastases, which appear as figures of lessened density, can be confirmed in this manner. Experimental animals and human beings suffer no evil effects from the use of this contrast medium. The roentgenograms presented were excellent and were highly approved by the assembly.

Newer Methods of Immunization Against Diphtheria

Before the Berliner Medizinische Gesellschaft, Professor Kolle, the director of the Institut für experimentelle Therapie in Frankfort-on-Main, spoke recently on "Newer Researches on Immunization Against Diphtheria and Methods of Testing and Determining the Value of Diphtheria Immunization Substances." The frequent failure of serum therapy in severe diphtheria, even after early treatment with highly potent antitoxin units, is due, not to the unsuitable nature of the serum but to the fact that the various diphtheria strains produce toxins of varying potency; other reasons are the mixed nature of the infection and the lymphatic constitution of the patient, to be regarded as labile. Therefore, trials with active immunization have been made and mixtures of toxin and antitoxin have been prepared. In connection with his work of receiving the government's methods of testing vaccination substances, Kolle showed by numerous experiments that the vaccines employed at present vary widely in quality. When used for immunization purposes or therapeutically the effects expected are not always realized. The formaldehyde vaccines have given the best results (toxoid). Kolle has prepared a new vaccine, which has shown a high degree of efficacy in prophylactic and therapeutic trials. The intramuscular injection of the vaccine is said to be devoid of danger. That a negative phase occurs after inoculation, with an increased disposition toward the disease, is denied, as it cannot be demonstrated by animal experimentation. The introduction of general vaccination against diphtheria is recommended to the medical boards.

The B C G Vaccine—Pro and Con

At present, the federal bureau of health is testing the theory of the Bulgarian physician Petrov to the effect that the Calmette bacilli have a tendency, under certain circumstances, to become virulent again. That is said to be an explanation for the Lübeck accidents. In the *Deutsche medizinische Wochenschrift,* Prof. R. Kraus of the State Bacteriologic Institute in Chile reports that it has been decided there to interrupt the use of the B C G vaccine for the time being. A child that was treated with the vaccine a week after birth died a year and a half later; the necropsy observations were "tuberculosis." The inoculation of rabbits and guinea-pigs with a culture prepared from material from the lung produced tuberculosis. The causative agent was found to be a strain of bovine tubercle bacilli, and, as the child had received no raw milk, Kraus assumes that the condition was caused by a strain of the Calmette bacillus that had regained its virulence.

Kraus called attention to a research of Hutyra, who reports that in winter a generalized tuberculosis appears in young guinea-pigs inoculated with the Calmette vaccine. Tubercle bacilli cultures can be secured from them that have pathogenic qualities. Hutyra has been unable to make in summer the same observations, so that he assumes that possibly intercurrent infections may cause an increase of virulence, which was later confirmed experimentally by Hormaeche and Mackinnon of Montevideo. Further interesting experiments of Hutyra and Hormaeche have shown that a Calmette strain with increased pathogenicity was found to be especially pathogenic for guinea-pigs, less pathogenic for rabbits and nonpathogenic for cattle.

In a reply, which is published in the same issue of the journal, Calmette calls attention to the fact that the isolated experiments of Hutyra, Hormaeche and Petrov have not been confirmed by anybody. As to the child who had died, who is said to have received no raw milk, Professor Fontecilla and R. Debre established that there was no certainty that the child had received no raw milk, and that, furthermore, the nurse that cared for the child has tuberculosis of the lungs and the kidneys. It is therefore possible that the child (which, moreover, died from pneumonia following whooping cough) became infected through the nurse, and that the tuberculous changes in the lung, found at necropsy, would not have spread if the whooping cough had not developed.

Merger for the Promotion of German Science

In the plenary assembly hall of the Herrenhaus, the former upper chamber of Prussia, the Notgemeinschaft der Deutschen Wissenschaft, now called the "Deutsche Gemeinschaft zur Erhaltung und Förderung der Forschung," celebrated recently its tenth anniversary. The federal government and the Stifterverband, during the difficult years of the postwar period, supported the Notgemeinschaft and thus made possible the continued existence of German science. Schmidt-Ott, the chairman and formerly Prussian minister of public education, described the principal aspects of its work. Even in the most critical period, the mistake was not made of supporting only especially useful branches of research; science was treated as an indivisible whole, The principal objective was, of course, the support of such researches as would promote especially the economic welfare, the public health and the public weal. The Notgemeinschaft has been governed in its activities by considerations of absolute and most strict reality. It is greatly to be regretted that, at the present critical period in the progress of German science, when the pioneer work of technical and scientific research is indispensable for the advancement of economic conditions, a decrease in the appropriations for the Notgemeinschaft is contemplated. Recognition of the fact that funds spent for research constitute just so much wisely invested capital, which will bring returns through the improvement of economic conditions, must penetrate more deeply into the consciousness of the general public.

Prof. Dr. Straub, pharmacologist, of Munich, spoke on "Vitamins, Hormones and Public Health." He said, in closing, that the public health will not derive the full advantages from modern research on vitamins and hormones until these substances become available in large quantities for the masses. That will require the discovery of inexpensive original material from which these substances may be obtained, and possibly their synthetic production. The vitamin that possesses such high therapeutic value in rickets can now be secured from yeast, while the hormone of the thyroid gland can be produced synthetically. Here lies the further task of the two sciences chemistry and medicine working hand in hand.

There followed an address by Professor Frings of Leipzig on "Aus dem Forschungsgebiet der Volkskunde." In conclusion, Professor Konen of Bonn spoke on "Aus dem Grenzgebiet von Technik and Forschung," in which he emphasized the important work of the Notgemeinschaft in determining the causes of mine disasters.

Correspondence

POISON IVY

To the Editor:—Having spent considerable time on the investigation of the active principle of various poisonous plants of the rhus family, including poison ivy, poison oak, poison sumach and Japanese sumach, I was greatly interested in the article by Dr. Paul D. Lamson on benzoyl peroxide in the treatment of poison ivy intoxication (The Journal, August 30, p. 663). The active principle of all poisonous rhus is practically the same. In physical appearance it resembles a fixed oil, but unlike the oils it does not yield glycerin on saponification. Its properties more nearly resemble an acid resin. It is very adhesive and it is almost impossible to remove it from the skin or clothing with soap and water. Hence it is easily conveyed from one part of the body to another. This has led many to believe that it spreads, and also that the serum is poisonous, as suggested by Dr. Lamson. This is not the case. If the surface which has been in contact with the poison is thoroughly washed with alcohol, kerosene, ether or gasoline, the effect of the poison will be confined to its original location. There is no danger from contact with the poison if the surface is thus washed within ten or fifteen minutes. This has been proved by numerous experiments. Though I am highly sensitive to the poison, I worked with it for months without any injurious effects.

The serum from acute cases of poisoning was applied to very sensitive tissues with negative results.

Liniments or ointments should never be applied to a poisoned surface unless it has been thoroughly washed with one of the solvents mentioned. Otherwise the poison will be dissolved and spread to the surrounding tissue.

Of the numerous methods of treatment that have been recommended for poison ivy, at least 95 per cent are of questionable value. They have been used during the last stages of the infection, and have received credit for the cure. It is to be hoped that benzoyl peroxide, recommended by Dr. Lamson, will prove an exception; but if the poison is removed before the peroxide is applied it is questionable whether an oxidizing agent is needed. Doubtless its greatest value will be in relieving the intense itching, and it may aid in drying up the lesions. Apparently its anesthetic action is more permanent than phenol, though not so rapid. A 3 or 4 per cent solution of phenol will relieve the itching in four or five minutes.

A. B. Stevens, Ph.C., Ph.D., Sc.D., Escondido, Calif.

"IS A MEAT DIET A MENACE?"

To the Editor:—In defense of the editorial entitled "Is a Meat Diet a Menace?" (The Journal, September 20, p. 866) and in reply to the criticism of Dr. Mark Falcon-Lesses (The Journal, November 8, p. 1445), it should be pointed out that the experiment of Newburgh, Falcon-Lesses and Johnston cited as proof of kidney damage really shows what extreme abuse the human body will stand with only a temporary damage resulting. The human subject used in this experiment may be considered to have been an average sized man doing the usual nonstrenuous activities of a member of a laboratory staff. Yet Newburgh, Falcon-Lesses and Johnston fed this subject a diet containing 4,177 calories and 327 Gm. of animal protein daily. A truly Gargantuan diet! Furthermore, in the preliminary control period, what was termed a normal number of casts appeared in the urine of the subject. The word "normal" in this case must be interpreted to mean "that number of casts which the clinician considers insufficient to warrant treatment." This normal number can logically be considered to indicate a mild existing kidney weakness. In spite of this and in spite of the high calory diet (about 50 per cent more than an average adult office worker needs) the subject showed no permanent damage since the urines promptly returned to the prediet condition when the diet was reduced to a normal one.

In regard to the relevancy of the experiments on laboratory animals conducted by Newburgh and his colleagues, it should again be pointed out that high protein experiments with rabbits are worthless. Concerning the rat experiments which are cited to show that high protein diets are harmful, Newburgh's work has been confirmed by Polvogt, McCollum and Simmonds (*Bull. Johns Hopkins Hosp.* **34:**168 [May] 1923), Evans and Risley (*California & West. Med.* **23:**437 [April] 1925) and Moise and Smith (*Arch. Path. & Lab. Med.* **4:**530 [Oct.] 1927). However, these results have been more than offset by the work of others who have shown no kidney damage from high protein diets when other factors were properly controlled. Among these other investigators are Drummond, Crowden and Hill (*J. Physiol.* **56:**413, 1922), Reader and Drummond (*J. Physiol.* **59:**472 [March] 1925), Osborne and Mendel (*J. Biol. Chem.* **59:**13 [Feb.] 1924; *Am. J. Physiol.* **68:**143, 1924), Osborne, Mendel, Park and Winternitz (*J. Biol. Chem.* **71:**317 [Jan.] 1927), Jackson and Riggs (*Proc. Soc. Exper. Biol. & Med.* **22:**482, 1925; *J. Biol. Chem.* **67:**101 [Jan.] 1926), MacLean, Smith and Urquhart (*Brit. J. Exper. Path.* **7:**360 [Dec.] 1926), Miller (*J. Exper. Med.* **42:**897 [Dec.] 1925), Addis and the MacKays (*J. Biol. Chem.* **71:**139 [Dec.] 1926), Kennedy (*Quart. J. Exper. Physiol.* **16:**281 [Aug.] 1926) and Anderson (*Arch. Int. Med.* **37:**297, 313 [March] 1926).

C. Robert Moulton,
Institute of American Meat Packers,
Chicago.

"CONTROLLED EXPERIMENTATION, HEMOCHROMATOSIS, AND THE ALCOHOL PROBLEM"

To the Editor:—A little over a year ago (Feb. 2, 1929) an editorial appeared in The Journal under the heading "Controlled Experimentation, Hemochromatosis, and the Alcohol Problem." In this editorial the importance of experimentation in medicine was stressed, but the absence of trained experimentalists, particularly in medicine, was deplored. The statements were made that "experiments in which animals are employed require unusual vigilance," that "two sets of animals are used as a rule, one for the experiment and another to control it," that "the neglect to employ infallible control experiments is appalling," and that "the paths to new and fruitful knowledge are so littered and encumbered with the wrecks and tragedies of defective experimentation that tracing the source of most of the advantages of modern medicine is an involved and difficult undertaking." The work of Mallory and his pupils in experimental hemachromatosis due to chronic copper poisoning (*J. M. Research* **42:**461 [Oct.-Dec.] 1921; *Arch. Int. Med.* **34:**292 [Sept.] 1924; *Am. J. Path.* **1:**117 [Jan.] 1925; *Arch. Int. Med.* **37:**336 [March] 1926) were taken as an example of such uncontrolled experimentation. This attitude was based on a paper by Flinn and Von Glahn (*J. Exper. Med.* **49:**5 [Jan.] 1929) in which the increased copper content of the tissues in human and experimental hemochromatosis, as compared with healthy tissues or tissues diseased in other ways, was denied and the statement made that the deposition of pigment could be produced in the livers of rabbits by the feeding of carrots exclusively.

This editorial seemed to me exceedingly unfair. Few experimentalists would ever assert that their published work was indisputably correct. The criticism concerned work that had been done by or under the supervision of an investigator who has carried on experimentation, particularly in relation to liver cirrhosis, for nearly forty years. Statements such as "The lesions to be described . . . are an outcome of a number of years of experimental work with various chemical reagents which might possibly be the cause of . . . alcoholic cirrhosis and hemochromatosis" and "of the other metals which form hemol compounds with hemoglobin, zinc is the only one which causes a lesion closely resembling that produced by copper," both of which appeared in the original article on the experimental work (*J. M. Research* **42**:475, 478 [Oct.-Dec.] 1921) certainly implied that the tissues of many animals, other than those fed with copper, had been carefully examined. At that time, however, my comment was withheld because of the feeling that my views were probably prejudiced because of collaboration in the experimental work.

The increased copper content in tissues from clinical cases of hemochromatosis has recently been confirmed by Oshima and Schönheimer (*Ztschr. f. physiol. Chem.* [Hoppe-Seyler's] **180**: 252 [Dec.] 1928) and increased copper content of the tissues together with pigmentation of the liver in experimental chronic copper poisoning has been reported by Oshima and Siebert (*Beitr. z. path. Anat. u. z. allg. Path.* **84**:106 [Feb.] 1930). In spite of the failure of the latter to demonstrate liver cell necrosis and increase in connective tissue of the liver, sufficient confirmation is available to warrant an editorial, "Hemochromatosis" (THE JOURNAL, October 4, p. 1022) in your columns in which the contribution of Mallory to the etiology of hemochromatosis is favorably commented on. No reference whatever is made to your previous editorial in which the same work was adversely criticized.

ROBERT N. NYE, M.D., Boston.

[COMMENT.—Dr. Nye calls attention to the fact that medical opinions change and that editorials in THE JOURNAL reflect the current point of view. When the first editorial was published, the material covered in the second editorial was not available. It is well to have the letter of Dr. Nye, which points out the way in which continued research has brought a change in the point of view of hemochromatosis. The second editorial might well have called attention to the fact that the previous view had been modified.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

DIFFERENTIAL DIAGNOSIS OF HEADACHE AND VOMITING IN CHILDREN

To the Editor:—A white girl, aged 8 years, perfectly well until four months ago, had a previous negative history except for scarlet fever without complications. At that time she was seized with an attack of vomiting at 5: 30 a. m. Since then the child has been having vomiting spells, which always seem to come at the same time of the morning. The child is awakened from sleep with a headache and then vomits. The vomiting is not projectile in character, and the vomitus is clear, containing mucus but no food. There is no nausea and the headache clears up after the vomiting. She vomits two or three times and then is perfectly well. Between attacks she acts normally and has no complaints. This morning she vomited and after the attack she felt a numbness in the left side of her tongue and in her left arm and leg, which passed off in a few hours. She vomits once every two weeks, at the same time, but not on the same day. She has lost about 3 pounls (1.4 Kg.) in weight. The physical examination is negative except for bilaterally equal but exaggerated knee jerks, and a left antrum which does not transilluminate as clearly as the right, but the difference is slight. Is this a case of Leyden's periodic vomiting? Are there any therapeutic suggestions outside of mental rest and nerve sedatives that you can offer?

G. H. PETTI, M.D., New York.

ANSWER.—Headache is not an uncommon complaint of sick children. Headache and vomiting may be associated in a variety of disorders. It would be superfluous to enumerate all the organic, toxic and functional conditions that might cause either or both. Recurrent nocturnal headache is a frequent expression of organic cerebral disease, especially if associated with vomiting, inequality of the pupils, strabismus, optic neuritis, irregularity of the pulse and convulsions.

Eyestrain, glaucoma and iritis are sometimes found to produce cephalalgia. Otitis media may act in the same way. Infection of the accessory sinuses may cause headache as well as vomiting. One sometimes hears children complain of headache after mild attacks of petit mal.

Chorea, rheumatism, dental caries, chronic tonsillitis and other conditions have undoubtedly been considered and excluded as etiologic factors.

Two other disorders may possibly be confirmed or excluded by an investigation of the patient during an attack. Leyden published a paper on periodic vomiting in the *Zeitschrift für klinische Medizin* in 1882. A vast literature on this subject has accumulated and the condition that he described is now known in the literature as cyclic vomiting, periodic vomiting or recurrent vomiting with acetonemia. It usually occurs in neuropathic children or in those coming from nervous parents.

In cyclic vomiting there is usually a disturbance due to anomalies in carbohydrate metabolism. The blood sugar is usually diminished and acetone bodies are excreted through the lungs and the kidneys. This disorder occurs at shorter or longer intervals, and the patients usually have an elevation of temperature, are drowsy and prostrated, and remain ill several days. It is clear that, if the urine is examined at this time for acetone bodies and the clinical course and symptoms are taken into account, the diagnosis of recurrent or cyclic vomiting could be established with little difficulty.

However, the history states that the child is first seized with headache and then vomits. Possibly this little girl is suffering from migraine, which may occur in early childhood. It has been recognized in a child 2 years of age. There may be a slight temporary pyrexia during an attack in children. There seems to be some relationship between migraine and epilepsy. It is not unlikely that in both diseases an irritation of the cortical brain substance is present in varying degree. The same thought would explain nausea and vomiting as an expression of general cerebral disturbance. Unilateral headache is the rule in migraine, though it is said that it may occur without nausea or vomiting; it has also been asserted that there are cases in which periodic attacks of nausea have occurred without headache. Heredity is an important fact to elicit in the family history. In many of the cases of migraine in children, one or both parents or some near relatives are also affected. These patients often complain of sensory disturbances in the limbs. Numbness, tingling and a sensation of pins and needles or of burning are not infrequently associated with migraine.

The history of this little girl states that she felt a numbness in the left arm and leg which passed off in a few hours. Visual disturbances are not uncommon in this disease. The visual acuity may be diminished in varying degrees during the attack. Sometimes there are temporary ocular disturbances which resemble the aura of epilepsy.

A neurotic or hysterical attack might suggest itself. As a general rule this is not a safe diagnosis to venture. Every reasonable diagnostic resource should be employed to exclude organic disease and local infection. Cyclic vomiting and migraine should be most thoughtfully considered.

In view of the difficulty of establishing a definite diagnosis, it is obvious that any suggestion about treatment should be deferred.

REMOVAL OF TATTOO MARKS

To the Editor:—I have a patient living at a distance who is quite anxious to remove some tattooing on the skin. The following directions, taken from Pocket Medical Formulary by W. E. Fitch, M.D., F. A. Davis Company, publishers, were sent to him: "A New Way of Removing Tattooing: ℞ 1900 ½. First the skin is vigorously rubbed until the outer epidermis comes off; then a paste of quicklime, just slaked, to which pulverized phosphorus (two tablespoonfuls to a pint) is added and thoroughly mixed, is applied to the tattooed surface and held by a bandage which is taken off two days later. The crust is left to dry and then fall off by itself, in about fifteen days. A second application should be made; a third is rarely necessary. Thus treated the tattooing disappears completely without the least scar." On attempting to have the formula compounded, he was told that pulverized phosphorus could not be obtained. Please tell me where pulverized phosphorus may be obtained and also your opinion of the efficacy of this formula. Please omit name.

M.D., Illinois.

ANSWER.—The removal of tattoo marks is extremely difficult and most of the methods suggested are unsatisfactory. The method with phosphorus, described in the letter, is not one widely recommended. No method would justify the claim that it removes the tattooing completely "without the least scar." The pigment in tattoo marks is too deep for that. The method for removing tattoo marks usually recommended is that with a 50 per cent solution of tannic acid to be tattooed into the surface, the method introduced by Variot in 1888. This consists essentially of tattooing with a 50 per cent solution of tannic acid and rubbing the surface with silver nitrate sticks. Dr. Marvin H. Shie has had a large experience in removing tattoo marks in the United States Public Health Service and he uses the Variot method, with a careful technic. He considers the subject of tattooing and the methods of its removal in an instructive article in The Journal (Jan. 14, 1928, p. 94).

BRONCHIAL ASTHMA

To the Editor:—A girl, aged 6, is well nourished and apparently normal in every particular, except that she has frequent attacks of bronchial asthma, especially at night. She has had it since she was 1½ years old, at which time she was given three injections of diphtheria toxin-antitoxin. Following the first injection she began to have asthma; she was much worse after the second and violently ill after the third and has had the attacks ever since. Skin tests have been made, and the substances to which she was hypersensitive have been excluded from her diet. Is there any way to desensitize this patient to overcome the bad effects of the serum which, it seems, must have been the cause of her trouble?

M.D., Indiana.

Answer.—Many allergic patients react excessively to horse serum. They are frequently spontaneously hypersensitive. This probably has little to do with the trouble at the present time. The patient is probably sensitive to some agent with which she is in constant contact. A thorough allergic study of the case should be made.

EPILEPSY A CONTRAINDICATION TO MARRIAGE

To the Editor:—A man, aged 25, has epilepsy characterized by petit mal attacks. Under phenobarbital therapy the "flashes" occur about once every four to seven days, lasting from ten to twenty seconds. Would you advise against marriage? If the patient does get married, are the chances of his children having epilepsy much greater than if both parents were normal? Can you refer me to literature on the subject?

M.D., New York.

Answer.—There is general agreement that heredity is an important factor in the etiology of true epilepsy; there is also no doubt that the children of epileptic parents are more frequently epileptic or feebleminded than are the offspring of normal parents. It seems probable, however, that the anlage to epilepsy is recessive in the mendelian sense, and for this reason when only one parent is epileptic the offspring may not show this condition, though it may appear in later generations; if both parents are epileptic it is probable that all children will be epileptic or feebleminded or both. There is also a relation between nervous diseases in the ascendants and epilepsy in the descendants, so that a mating between a person with epilepsy and one from a family with neuropathic traits, even in the absence of actual epilepsy, would also be an extremely serious risk. All textbooks on nervous diseases discuss this problem to some extent and there is a brief summary in Heredity in Nervous and Mental Disease, New York, Paul B. Hoeber, Inc., p. 258. In the latter will be found references to other articles, notably one by Snell, O.: Die Belastungsverhältnisse bei der genuinen Epilepsie (*Ztschr. f. d. ges. Neurol. u. Psychiat.* **70:**1, 1921).

TRANSIENT HEMIPLEGIA

To the Editor:—A man, aged 69, with well developed arteriosclerosis and hypertrophy of the left ventricle of the heart, suddenly became paralyzed on the entire right side one week ago, after eating a hearty breakfast. The paralysis lasted half an hour and disappeared. Since then he has had five or six similar attacks, which have lasted from ten minutes to an hour. The last attack affected the throat muscles and the speech. Sometimes the leg twitches during an attack. I am treating this as a case of threatened apoplexy.

Albert Beam, M.D., Americus, Kan.

Answer.—Transient hemiplegias and aphasias of the type described, associated with arteriosclerosis, may be compared with similar transient paralyses of spinal origin which are usually described as intermittent claudication. The exact mechanism of their production is not clearly established, but it seems probable that for some reason there is a temporary stasis of the blood, which is liable to lead to thrombosis rather than to hemorrhage. Patients may have many such attacks and escape a permanent lesion. In the management of such cases, the regimen must be that for arteriosclerosis. In view of the possibility of thrombosis, it is unwise to do anything directed toward reducing blood pressure; rather the heart needs supporting. Avoidance of strains and stresses, emotional and otherwise, with regulation of diet are the most important indications.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 12, 1931. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery, Ala.

Arizona: Phoenix, Jan. 6-7, 1931. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

California: San Francisco and Los Angeles, Dec. 10, 1930. Reciprocity examinations. Sec., Dr. C. B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

Colorado: Denver, Jan. 6, 1931. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

Delaware: Wilmington, Homeopathic, Dec. 16-18, 1930. Regular, Dec. 9-11, 1930. Reciprocity, Dec. 16, 1930. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington, Del.

Dist. Columbia: Basic Science, probably Dec. 28, 1930. Regular, Jan. 12, 1931. Washington, D. C. Sec., Dr. W. C. Fowler, District Bldg., Washington, D. C.

Kansas: Topeka, Dec. 9, 1930. Sec., Dr. A. S. Ross, Sabetha, Kan.

Maryland: Regular, Baltimore, Dec. 9-12, 1930. Sec., Dr. H. M. Fitzhugh, 1211 Cathedral St., Baltimore, Md. Homeopathic, Baltimore, Dec. 9, 1930. Sec., Dr. John A. Evans, 610 W. 40th St., Baltimore, Md.

Minnesota: Minneapolis, Jan. 6-7, 1931. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., Minneapolis, Minn. Regular, Minneapolis, Jan. 20-22, 1931. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., Minneapolis, Minn.

Mississippi: Jackson, Dec. 11, 1930. Reciprocity Applicants only. Sec., Dr. F. J. Underwood, Jackson, Miss.

North Dakota: Grand Forks, Jan. 6-9, 1931. Sec., Dr. G. N. Williamson, Grand Forks, N. D.

Oregon: Portland, Jan. 6-8, 1931. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland, Ore.

Pennsylvania: Philadelphia, Jan. 6-10, 1931. Supt., Mr. C. D. Koch, Harrisburg, Pa.

Rhode Island: Providence, Dec. 30-31, 1930. Dir., Mr. L. A. Round, Room 319 State Office Bldg., Providence, R. I.

Utah: Salt Lake City, Dec. 15 and 16, 1930. Dir., Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City, Utah.

Virginia: Richmond, Dec. 9-12, 1930. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke, Va.

Washington: Seattle, Basic Science, Jan. 8-9, 1931. Regular, Jan. 12-13, 1931. Dir., Mr. Charles Maybury, Olympia, Wash.

Wisconsin: Milwaukee, Dec. 13, 1930. Basic Science. Sec., Prof. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis. Regular, Madison, Jan. 13-15, 1931. Sec., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

Mississippi June Examination

Dr. F. J. Underwood, secretary of the State Board of Health of Mississippi, reports the written examination held at Jackson, June 25-27, 1930. The examination covered 12 subjects and included 96 questions. An average of 75 per cent was required to pass. Thirty-three candidates were examined, 31 of whom passed and 2 failed. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
University of Arkansas School of Medicine	(1930)	82
Emory University School of Medicine	(1930)	86, 89
University of Illinois College of Medicine	(1930)	79,* 86,* 87*
University of Louisville School of Medicine	(1930)	85, 85
Tulane Univ. of Louisiana School of Med.	(1930)	82, 84, 88, 89, 90
Creighton University School of Medicine	(1929)	83
Jefferson Medical College	(1930)	83
University of Pennsylvania School of Medicine	(1930)	85, 89
Meharry Medical College	(1930)	81
University of Tennessee College of Medicine	(1930)	80, 82, 83, 84, 84, 85, 86, 88
Vanderbilt University School of Medicine	(1930)	83, 86, 87, 88
Dalhousie University Faculty of Medicine	(1924)	83
FAILED		
Nongraduates		36,† 66†

* This applicant has received a four year certificate and will receive an M.D. degree on completion of one year's internship in a hospital.

† These candidates were admitted to the examination by special acts of the legislature: chapter 132, House Bills 288 and 735.

Dr. Underwood also reports 12 physicians licensed through reciprocity with other states at the same meeting. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
University of Arkansas School of Medicine	(1905)	Louisiana
Hahnemann Medical College of Illinois	(1899) (1905)	Illinois
Northwestern University Medical School	(1928)	Missouri
Tulane University of Louisiana School of Medicine	(1923)	Alabama
	(1927) (1928, 2)	Louisiana
Jefferson Medical	(1915)	Virginia
University of Ten	1922) (1927)	Tennessee
University of Vern	(1905)	Vermont

Social Medicine and Medical Economics

THE WHITE HOUSE CONFERENCE ON CHILD HEALTH AND PROTECTION

President Hoover called together, more than a year ago, a small group to initiate the organization of a Conference on Child Health and Protection. In due time the group was enlarged until about 1,200 representative citizens from every field of child welfare were included. They organized into more than 120 committees and undertook, by research and collection of knowledge, a study of the problems involved. The results of the year's work were presented before the delegates assembled in Washington, November 19-22. More than 3,000, including physicians, psychologists, educators and administrators, were in attendance at the request of the President, as representatives of federal departments, states, cities, national organizations and the medical profession. The conference organized into four sections. Section 1 was on medical service, under the chairmanship of Dr. Samuel M. Hamill; section 2 on public health service and administration, under the chairmanship of Surg. Gen. Hugh S. Cumming; section 3 on education and training, under the chairmanship of F. D. Kelly, Ph.D., and section 4 on the handicapped, prevention, maintenance and protection, under the chairmanship of C. C. Carstens, Ph.D.

President Hoover, in his address at the opening session held in Constitution Hall, said that the problems of the conference fall into three groups: (1) the protection and stimulation of the normal child, (2) aid to the physically defective and handicapped child, and (3) the problems of the delinquent child. One of the committees reported, the President said, that among 45,000,000 children there are 35,000,000 who are reasonably normal, 6,000,000 improperly nourished, 1,000,000 with defective speech, 1,000,000 with weak or damaged hearts, 675,000 who present behavior problems, 450,000 who are mentally retarded, 382,000 tuberculous, 342,000 with impaired hearing, 300,000 who are crippled, 50,000 partially blind, 18,000 totally deaf, 1,400 wholly blind, 20,000 delinquent, and 500,000 who are dependent. "If we could have" the President continued "but one generation of properly born, trained, educated and healthy children, a thousand other problems of government would vanish. . . . These are a part of the problems that I charge you to answer. This task that you have come here to perform has never been done before. . . . From your explorations into the mental and normal endowment and opportunities of children will develop new methods to inspire their creative work and play, to substitute love and self-discipline for the rigors of rule, to guide their recreations into wholesome channels, to steer them past the reefs of temptation, to develop their characters, and to bring them to adult age in tune with life, strong in moral fiber, and prepared to play more happily their part in the productive tasks of human society."

The second general session was addressed by James J. Davis, Secretary of Labor, who said that "If we could put into practice what we know about safeguarding the health of children, preventing a deficiency and delinquency, and providing opportunities for wholesome group activities, we could in a single generation profoundly improve the whole character of our national life. The long, unhappy procession of children who enter adult life, physically, socially and mentally handicapped, could be made a much shorter one and the efficiency of our citizens be correspondingly increased."

The section meetings were held in Constitution Hall, the Corcoran Art Gallery, the National Academy of Sciences Building and the American Red Cross Building. The findings and conclusions of the year's intensive study of childhood, which may be used as a national standard for local legislation and for the guidance of welfare activities and scientific research, were adopted at the final meeting. The summary report of Section 1 on medical service follows:

A. THE COMMITTEE ON GROWTH AND DEVELOPMENT

1. Knowledge of the growth and development of children is extensive in some respects but meager in others. It is important to recognize the gaps which exist and to admit ignorance, rather than to theorize with unwarranted assurance.

2. Knowledge of the processes of growth and development during the first few weeks of life and the period of adolescence is particularly inadequate. In future studies, special consideration should be given to these two age periods.

3. A still more satisfactory understanding of the fundamental processes of mental and physical growth and development is clearly needed. This demands unremitting, conscientious and cooperative research by the laboratory worker, the clinician and all others cooperating in the study of the child.

4. The social and economic conditions of a child's surroundings may exert a profound influence on his development, both physical and mental. Nutriment, fatigue and such other factors as the competence of the parents, educational opportunities, the unusual hazard of disease, and so forth, are of the utmost importance and must be evaluated at all times. Scientific investigation of the factors from which clean-cut deductions may be drawn is difficult. Studies beginning with clear definitions of terms and definite objectives need to be undertaken.

5. Mental and emotional factors have an important bearing on physical health. This implies that the doctor, in particular, should endeavor to understand the causes of behavior of his patients, and, above all, he should assist parents to develop a sound point of view in regard to the general management of the life of their children.

6. Opportunity should be afforded every child for nutrition which to the best of our present knowledge is optimal for his needs. A well balanced diet must include both in quantity and in quality all the elements essential for the demands of the processes of growth. The provision of a liberal quantity of milk and of eggs, fruits and green vegetables provides a valuable safeguard.

7. Mothers should be encouraged to nurse their babies. Human milk from healthy and properly nourished mothers is the ideal food for infants. Artificial feeding in cases of necessity may be a satisfactory substitute when conducted with understanding medical supervision.

8. No single set of facts, such as height and weight, is adequate in itself to appraise and pass judgment on the health of the child. Mental and physical factors, his previous history, his race, his present condition, his opportunities and background, all are important. The normal differences which exist between individual children must be given due weight.

9. Periodic health examinations constitute a valuable safeguard to health. These examinations should begin with the new-born infant to be repeated at suitable intervals thereafter. These should not cease with entrance to school, but should be conducted at least through adolescence. Periodic examinations should be thorough and comprehensive, and be conducted by physicians acquainted with the healthy child and the complexities of growth and development, as well as the manifestations of the diseases peculiar to the different age levels. Reliance on superficial routines and unthoughtful application of so-called standards must be guarded against constantly.

10. Disease influences detrimentally the growth and development of children. The best treatment is prevention.

B. THE COMMITTEE ON PRENATAL AND MATERNAL CARE.

1. Infant and maternal mortality and disability are unnecessarily high. The main causes for the mother are infection, toxemia, hemorrhage and injury. For the infant they are prematurity, birth injury, malformations and infection.

2. These casualties can be reduced by adequate maternal care throughout pregnancy, labor and the lying-in period. The infant from the moment of birth requires adequate medical attention just as much as the mother.

3. The universal application of our present obstetric knowledge would markedly improve these conditions. The public needs further education as to the necessity of adequate facilities for maternal care and for the education of trained personnel. The various methods now in use for educating the pregnant woman and the public are all effective and should be continued. Interested national organizations perform a valuable function in initiating and advising local efforts. While local activities should conform to certain essential standards, too much standardization destroys local initiative.

4. Adequate care for maternity cases in the home and hospital with segregated maternity services should be available in every urban and rural community. A comprehensive program requires the cooperation of obstetrically trained doctors and nurses, and certain nonmedical workers in the fields of social service, domestic economy and nutrition.

5 There should be some modification of the methods of reporting and classifying stillbirths and early infant and

maternal deaths. It is particularly unfortunate that previable infants who have no possible chance of survival are now reported as live births. This leads to an unduly high figure for early infant mortality. More accurate statistical data as to the number and causes of deaths will lead to a better understanding of causes and a more effective prevention of such casualties.

6. Midwives are still needed in certain rural localities because of racial and economic conditions. As long as the necessity exists, more adequate provision should be made for their training and for proper supervision under medical control.

7. Nurses constitute an important agency in maternal care. Their undergraduate and graduate training in this field should be encouraged and improved. There is special need for better training of nursing instructors. The training of nursing attendants for maternity care should also be considered.

8. Adequate medical education is fundamental to any program for maternal care. We recommend the following specific improvements:

> A more thorough correlation of obstetric teaching with the basic sciences.
>
> Enlargement of women's clinics wholly under the control of medical schools.
>
> Residence of medical students in such women's clinics where they may for a sufficient length of time receive correlated practical teaching in maternal and infant care.
>
> Personal supervision by an obstetric teacher of all home deliveries by students.

Increased facilities in the medical schools will also provide postgraduate training for those who wish to become specialists, investigators and teachers, and for the general medical practitioner who wishes to improve his obstetrical knowledge.

Institutions for medical education and service require adequate financial support.

C. THE COMMITTEE ON MEDICAL CARE FOR CHILDREN.

The results of the various investigations have brought out certain facts and led to certain definite conclusions.

1. There is an enormous amount of preventive work being carried on by individuals and by groups of individuals which is incomplete and wasteful because uncoordinated. There are few communities where a complete child health program is being carried out. Careful studies of local situations should be carried out locally for or by the parties concerned in order to develop more complete coordination.

2. There is abundant evidence of lack of appreciation of the value of preventive measures by the laity. Intensive popular education is still greatly needed and should be undertaken. In such a campaign the assistance of the lay press is essential. The carrying out of preventive measures is part of the responsibility of the general practitioner and his cooperation should be sought.

3. There is little definite knowledge of the extent of bad body mechanics or "posture." Its effects on health, in the opinion of many physicians, are proved from experience with small groups of children. Extensive careful scientific investigation should be carried out in many localities and among all classes of the population to determine its extent and effect.

4. The practice of oral hygiene and reparative dentistry, carried on for a number of years, while improving general health, has failed to decrease the incidence of dental caries among children. Such work should be continued and extended, but intensive experimental and clinical work on a large scale should be undertaken to determine definitely the part played by mineral metabolism as influenced by dietary procedures in the incidence of dental caries.

5. Curriculums of educational institutions for physicians, dentists, nurses and physical therapists show great variations and in many cases utterly inadequate attention to preventive measures. Administrative authorities in the various schools should be urged to seriously consider the adequacy of their curriculums for preparing their students to give advice regarding essential preventive measures.

6. Conferences with various professional educational groups should be held to consider minimum essentials of education in preventive measures and the best practical way of adjusting curriculums to meet these needs.

7. While the committee has not investigated the extent to which measures for safeguarding the health of children in activities where health is not the primary purpose, it wishes to emphasize its conviction that in every activity for children such measures are of very great importance, are often neglected, and should always be provided under competent medical supervision.

REPORT OF SECTION ON PUBLIC HEALTH SERVICE

The summary report of section 2 on public health service and administration follows:

The three committees of section 2 presented to the conference detailed reports and discussions of their work and their findings. With one exception the reports were favorably received by the delegates who came to hear them.

The outstanding facts which were developed by the Committee on Communicable Disease Control, of which Dr. George H. Bigelow is the chairman, are that: 1. The knowledge of control in many communicable diseases exceeds its practical application. Existing knowledge, if generally applied, would result in a marked reduction in the prevalence of these diseases. 2. There are, however, many gaps in our knowledge concerning the results of present measures, and the fundamental facts of cause, distribution, prevention and control of many of the communicable diseases. This knowledge, when supplied, will greatly simplify and focus efforts toward control. 3. Consequently, differences in opinion and practice exist concerning the procedures to be followed to prevent or diminish the prevalence of communicable disease. Such differences will be resolved only when more precise knowledge is available. The committee emphasized the necessity for well equipped full time public health service with competent personnel for urban and rural districts, with adequate community support and legal powers relative to all phases of preventive medicine.

The Committee on Milk Production and Control, of which Mr. H. A. Whittaker is the chairman, emphasized the fact that the consumption of fluid milk in the United States is too low for proper and economical human nutrition. This country is far below the optimum daily consumption of milk for the normal child. Health agencies both official and voluntary should more actively encourage greater use of high quality milk as a nutritional and health protective program. The best information available indicates that approximately one quart of milk is desirable daily for the average growing child; but the average child receives considerably less than this amount.

While marked improvement in the sanitary quality of milk has been brought about during the past several years by agricultural and public health agencies, the investigations of the committee indicate that there is need for further improvement in the public health and quality supervision of the milk supply of this country. The committee specifically recommended that uniform requirements should be incorporated in laws or regulations for the supervision of milk supplies at least the equivalent of those contained in a milk ordinance to be recommended by the United States Public Health Service and the Bureau of Dairy Industry of the United States Department of Agriculture. It is fundamental that all milk supplies should be surveyed and rated as frequently as practicable.

The committee is of the opinion that the general market milk should be pasteurized before it is consumed. Attention was called to the outstanding achievement of the federal Department of Agriculture, attained through its interest in the development of accredited herds throughout the country. Systematic work along this line began only ten years ago but far reaching results have already been obtained.

The Committee on Public Health Organization, of which Dr. E. L. Bishop is the chairman, states in its report that public health administration is a relatively new science, because only in fairly recent years has there been sufficient knowledge in regard to the etiology of disease to make possible the application of specific control measures. It is a difficult science because it involves in addition to other complexities the problem of human relationships. Methods relative to the application of knowledge have therefore lagged behind the knowledge of laboratory science on which administrative practice is based. These facts have made the task of the committee especially difficult because there were no blazed trails for it to follow. It has, however, endeavored to prepare, from a completely detached point of view, an outline of procedure which in the opinion of its members would best integrate public health procedure into the administrative scheme of the three elements of American government.

The report of the Subcommittee on Federal Health Organization, of which Dr. Haven Emerson is the chairman, contained one phase which met with vigorous protest by many of the members of the conference to whom it was presented on the second and third days of the meeting. The point at issue involved the conclusion that authorization should be provided for the transfer of the functions, together with the personnel and necessary appropriations for their support, of the health activities of the Divisions of Child Hygiene and of Maternity and Infancy of the Children's Bureau to the Public Health Service, except so far as they are concerned with health studies inseparable from and indispensable to the functions of this bureau in the field of welfare of women and children. It was suggested, therefore, that in conformity with the wishes expressed by the President this point of controversy be referred to a continuing committee of the conference for further consideration, and that the report of the subcommittee as originally presented, together with the subsequently submitted dissenting opinion of Miss Abbott, be included in the final publication of the conference, with a note indicating that this matter is subject to further consideration by a continuing committee as proposed by the President.

A major recommendation of the Subcommittee on Federal Health Organization was the continuance and increase of federal agents in aid with the object of developing competent health organization in rural communities throughout the country serving the general as well as the special health needs of children.

The Subcommittee on Federal Health Organization, of which Dr. John A. Ferrell is the chairman, advocated for state health departments the establishment of an organization composed of full time trained personnel to carry on the necessary administrative and special functional public health activities. It is believed that the state should join with the counties or other local governments administratively and financially in organizing and conducting adequate local health service. It is of further opinion that the federal government, through the state health departments, should supply to the various states in proportion to their needs, the personnel and money necessary to guarantee to every community in the nation a health service that will be able to maintain at least what the authorities may designate as a recognized standard of adequacy.

The Subcommittee on City Health Organization, of which Dr. Henry T. Vaughan is the chairman, emphasized the well recognized fact that no municipal health organization has divided its functions according to the race or age distribution of its population but has so coordinated each of its special functional divisions that they contribute most effectively directly to the improvement of child health and protection. A true test or measure of the successful operation of a city health department consists in the lowering of infant mortality and the improvement of the health level of the child and of the community.

The Subcommittee on Rural Health Organization, of which Dr. Allen W. Freeman is the chairman, calls attention to the fact that, whereas the cities are provided with various institutions in the interests of the health and welfare of the child, the rural areas must rely almost entirely on the county health unit for the problems involved in child health and in the protection of the community in health affairs. The sole and indispensable agency of health throughout the country for rural communities is the local full time health organization as now promoted and to a degree supported by federal grants in aid through state departments of health to individual counties. The committee advances the opinion that federal aid in promoting and maintaining county health departments has proved its utility and should be largely extended.

The Subcommittee on the Relation of Official and Nonofficial Agencies in Public Health Organization urged the necessity for paralleling official health organization locally and nationally by rural health councils which will permit the coordination of official and voluntary health agencies in rural communities, and the true coordination of national health agencies among themselves in order to avoid conflicting and competing appeals to the public for the health interest of the child.

The Subcommittee on Training of Health Personnel, of which Dr. W. S. Leathers is the chairman, emphasized the great need for educational institutions and government medical services utilizing the facilities for training health personnel. One of the most significant trends in providing trained health personnel is to develop, in medical schools, well organized and properly financed departments of hygiene and preventive medicine so that physicians may have a knowledge and an understanding concerning the part which they should play in the prevention of disease as practitioners of medicine. From this group will be obtained health officers, and, in order to stimulate interest on the part of medical students to adopt public health as a career, it is fundamental that they be stimulated as undergraduate students in going into this field of medical service.

The training of health personnel also involves providing proper facilities for the training of nurses and sanitary inspectors. A report of the subcommittee developed the great need of providing better facilities for training nurses in schools of nursing in conjunction with departments of hygiene and preventive medicine in medical schools. It is realized that efficient public health work can be done only by having properly trained personnel, and the whole advance in public health organization depends on those who are effectively trained.

Important features of the report of the Subcommittee on the Administration of Child Health Work as a part of the Official Health Program, of which Dr. Anna E. Rude is the chairman, are as follows: All child health activities, whether federal, state or local, as well as activities sponsored by private agencies, should be coordinated and supervision or direction given by the constituted official health agencies; that these child health activities should be standardized so as to be scientifically sound; that extension of child health activities with emphasis on preventive health measures directed to the early age group is indicated, and, finally, that increased federal, state and local, as well as private appropriations are necessary to perfect and extend further child hygiene activities.

The Subcommittee on Practitioners of Medicine and Dentistry in Relation to Health Programs, of which Dr. David Chester Brown is the chairman, calls attention to the fact that there are certain phases of public health work which are especially well adapted for developing a constructive program of cooperation between health agencies and the physicians and dentists of a community. The state and local health departments should advise with the medical and dental professions in determining such programs. The state medical and dental associations should appoint, for the benefit of the state health officer, advisory committees approved by their legislative bodies. Likewise, the district or county organizations should appoint advisory committees for local health officers. These committees will prove invaluable in adjusting differences, stimulating interest and securing cooperation on the part of practitioners. Practicing physicians and dentists are, and should be, very important factors in safeguarding the health of the public. Therefore, any method employed in public health administration which tends to destroy the confidence of the community in these professions is not in the interest of human welfare and should not be tolerated.

REPORT OF SECTION ON EDUCATION AND TRAINING

Section 3, on education and training, pointed out in its report that the statements commonly heard about the youth of today running wild were not substantiated by the studies made for this conference. The present agencies for child education and training in general are alert and managed by competent men and women. What is needed is continuous critical and sympathetic study of these agencies, and then encouragement and support of the programs evolved. Society must demand for every child his right to a fair chance and that involves first that he shall be born right, that he shall have a fair start and not be handicapped for life by a feeble endowment of body or mind. The welfare of a child depends on nothing else so inevitably as on the personality relationships within the family and the child's reaction to them. The best educational efforts of schools and other agencies may be ineffectual if the emotional background of the child's life is unhappy and insecure. A school health service, the report adds, is an essential part of every school organization. Parents, teachers, school authorities and health specialists should join in devising a program such as will assure the full safeguards of immunization, the early detection and exclusion of contagious diseases, and the discovery and correction of remediable defects of body and mind in all the children regardless of their economic status but above all the health program should systematically promote such a regimen of life—diet, sleep, work and play—as will contribute most to the full mental and physical vigor of every child.

REPORT OF THE SECTION ON THE HANDICAPPED

Section 4, on the handicapped reported that the proportion of children abused or wilfully neglected is small, but the aggregate mounts into the thousands and every locality has the problem in its midst. The more common of these abuses and neglects include failure to provide sufficient food and clothing and proper living conditions and needed medical and surgical treatment, as well as the exposing of children to immoral associations. About 1,500 foster institutions and 350 foster family agencies cared for approximately 250,000 children during the last year, one third of whom were in foster families. On the basis of the best available statistics, the report says that about 200,000 different delinquent children in 1928 were dealt with by various courts of the country and that this is only a fraction of all delinquents, as a great many are handled by the police and other agencies without resort to the courts. The report suggests that out of this conference may grow a committee, under the Department of Labor, representing the professions and leaders in industry, education and social work to undertake a practical solution of the difficulties that confront handicapped children. The report also recommended that the work of the national organizations dealing with special types of handicaps coordinate their work into a National Council on the Handicapped, which might have some federal bureau act as a research bureau and clearing house of information for the various states. The report of section 4 was, in part, as follows:

> If there are from three million to five million children in the United States, as it is believed, who are handicapped in the ordinary sense of the word, namely, children who are blind and partly seeing, who are deaf and hard of hearing, who are crippled, who are mentally defective or who are suffering from tuberculosis, heart disease or parasitic diseases, the problem of the care of these children becomes a major obligation of this nation and of its constituent states. Much has been done already through public and private service, but there are wide areas, especially the rural sections of our various states, that are a veritable No Man's Land—areas where handicapped children in desperate need grow up and die without ever hearing of efforts in their behalf. The various groups have special needs but there is at least one fundamental principle that may be expressed as lying back of all the work that needs to be done and that may read as follows:
>
> Like every child, the child who may have some physical or mental handicap is to be regarded as a potential social asset and not a liability. The handicapped child should be so guided that his aptitudes and abilities may be given the fullest development and that his life may become one of usefulness, success and happiness.
>
> Children who are physically or mentally handicapped are not *peculiarly set apart from other children. Their likenesses to* other children are greater than their differences. They require, however, more intensive application of medical care and of academic and social care and treatment to equip them to participate as fully as possible in the normal life of the community.
>
> For the handicapped child in need of temporary institutionalization, the institution should provide treatment, care and training looking toward the child's rehabilitation and restoration to community life. For the handicapped child in need of more permanent institutionalization, institutions should provide adequate treatment, well rounded custodial care and training which utilizes the child's mental or physical abilities to the best advantage during his institutional life.
>
> In the study of the six groups of the physically and mentally handicapped, certain additional general needs have come increasingly to the front; namely, early diagnosis, specialized treatment and individual health education, the largest possible cultural education that the child is able to enjoy and absorb, specialized vocational guidance, vocational education and advantageous placement with careful follow-up. The special training and education required on the part of these groups is more expensive than the education of the ordinary child, but the additional cost is inconsiderable when compared with the expense that the child who is untrained and unequipped for the world's work lays upon the community during the rest of his life.
>
> In order that the needs of these handicapped children may have careful consideration and may be fully met, it is necessary that there shall be a central state coordinating agency closely linked up with the Department of Public Welfare or one of its divisions.
>
> One of the major possibilities of the White House Conference on Child Health and Protection in respect to the handicapped would be achieved if there could be sponsored under the Department of Labor a committee representing, on the one hand, leaders in industry, commerce and the professions, and, on the other hand, the medical, educational and social work groups who are daily dealing with the problems of physically and mentally handicapped with the idea in mind that through such a committee a practical solution of the difficulties that confront the handicapped could be worked out.
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> The committee dealing with the physically and mentally handicapped joins with the Committee on Special Classes of the Section on Education and Training in recommending that national organizations dealing with special types of handicaps coordinate their work in a National Council on the Handicapped. The recommendations of the White House Conference on Child Health and Protection to promote public information about the handicapped and the means of amelioration, treatment, cure, training and placement should be given careful consideration by this council so that contacts may be made with the appropriate administrative agencies in the counties and other political units in the states and that the findings, conclusions and recommendations of the White House Conference may be made increasingly effective in the several states. Such a council could do its best work if as a result of this conference some appropriate federal government bureau could be designated as the proper agency to act as a research bureau and clearing house of information for the various states and if in each state a state advisory council for handicapped children could be created, made up of representatives of state organizations interested in such children, to cooperate with the national council and to aggressively promote in the states measures for making effective the recommendations of the White House Conference.
>
> The United States is conducting forty-eight or more different experiments in the field of child care in its various states and territories. These experiments are based on certain fundamental principles that lie back of all of them but are modified by the variety of races and nationalities served and by the various Old and New World traditions found in their populations. It is clear that there is no one panacea in organization for child care, but the experience of one state has definitely modified the forms in other states and so the diversity we often decry has once more proved of value.
>
> The services are very diverse. While there are localities and even states that are inclined to "enjoy" unmolested whatever standard of public administration is desired by its people, this attitude is rare. In spite of this diversity, there is an approximation even now to a "national minimum," but its terms need to be understood and more definitely interpreted in order that it may adequately express our standards of health, happiness and general welfare for all children throughout the country. The development of standards is an evolving process as new needs and new possibilities appear and must be carried on by each state independently and by the federal government in cooperation with the various states.

SUMMARY OF THE CONFERENCE BY DR. WILBUR

The work of the White House Conference on Child Health and Protection was summarized, Saturday evening, November 22, in a nation-wide radio talk by the chairman of the conference, Dr. Ray Lyman Wilbur. Among other things, Dr. Wilbur said:

"Every child is entitled to be understood, and all dealing with him should be based on the fullest understanding of the child.

"Every prospective mother should have suitable information, medical supervision during the prenatal period, and competent care at confinement. Every mother should have postnatal medical supervision for herself and child.

"Every child should receive periodical health examinations before and during the school period, including adolescence, by the family physician or the school or other public physician, or such examination by specialists and such hospital care as its special needs may require.

"Every child should have regular dental examination and care.

"Every child should have instruction in the schools in health and in safety from accidents, and every teacher should be trained in health programs.

"Every child should be protected from communicable diseases to which he might be exposed at home, in school or at play, and protected from impure milk and food.

"Every child should have proper sleeping rooms, diet, hours of sleep and play, and parents should receive expert information as to the needs of children of various ages as to these questions.

"Every child should attend a school which has proper seating, lighting, ventilation and sanitation. For younger children, kindergartens and nursery schools should be provided to supplement home care.

"The school should be so organized as to discover and develop the special abilities of each child, and should assist in vocational guidance; for children, like men, succeed by the use of their strongest qualities and special interests.

"Every child should have some form of religious, moral and character training.

"Every child has a right to play, with adequate facilities therefor.

"With the expanding domain of the community's responsibilities for children, there should be proper provision for and supervision of recreation and entertainment.

"Every child should be protected against labor that stunts growth, either physical or mental; that limits education, that deprives children of the right of comradeship, of joy and play.

"Every child who is blind, deaf, crippled or otherwise physically handicapped should be given expert study and corrective treatment, where there is the possibility of relief, and appropriate development or training. Children with subnormal or abnormal mental conditions should receive adequate study, protection, training and care."

Book Notices

The Principles and Practice of Medicine: Designed for the Use of Practitioners and Students of Medicine. Originally written by the late Sir William Osler, Bt., M.D., F.R.S. Eleventh edition revised by Thomas McCrae, M.D., Physician to the Jefferson and Pennsylvania Hospitals, Philadelphia. Cloth. Price, $7.50. Pp. 1237. New York: D. Appleton & Company, 1930.

Not many medical books are as easily recognized on library shelves as Osler's Practice of Medicine. It has been used as a textbook in medical schools for many years. The eleventh edition retains binding, color and size similar to that of its predecessors. Indeed, the aim of the editors since the death of Osler has been to retain in each edition the reading material also that is characteristic of him. Many new subjects, however, have been added, a few of which are poisoning from radioactive substances, poisoning from methyl chloride, hypoglycemia, asbestosis, pentosuria, lipoid histocytosis and infantile splenic anemia. This volume, as some of the others, is dedicated to three teachers of William Osler, namely, William Arthur Johnson, James Bovell and Robert Palmer Howard, with whom one becomes so well acquainted in Cushing's biography.

Les groupes sanguins, schémas et applications pratiques: La transfusion sanguine, technique et indications. Par Paul Michon, médecin des hôpitaux de Nancy. Paper. Price, 16 francs. Pp. 120, with 7 illustrations. Paris: Masson & Cie, 1930.

The aim of this little book is to describe clearly (1) the curious phenomenon of iso-agglutination of human blood and the technic of determining the blood groups and (2) the method and indications of blood transfusion. The medicolegal applications of blood grouping are considered also. The booklet is recommended as a reliable guide in its field. Attached to the booklet are no less than forty-eight pages of advertising matter relating to books issued by the publishers.

Fundamentals of Dietetics: A Text-Book for Nurses and Dietitians. By Bertha M. Wood and Annie L. Weeks. Second edition. Cloth. Price, $1.75. Pp. 243. Philadelphia: W. B. Saunders Company, 1930.

This is a textbook on dietetics for the teacher of nurses and for the nurse herself during her student training and for her guidance after graduation. The more recent ideas of nutrition are incorporated. The subject is presented in two courses: course I, preliminary dietetics, comprising fourteen lessons each consisting of a lecture and associated laboratory, experimental or demonstration work, and course II, advanced dietetics, comprising ten lessons each consisting of a lecture and appropriate laboratory or demonstration work. The book is intended to promote the importance of dietetics in the curriculums of nursing schools. The practice of medicine is giving more and more consideration to dietotherapy in the prevention and cure of disease. The practice of nursing requires a similar appreciation of the value of dietotherapy and an appropriate training to apply its principles efficiently in cooperation with the medical man. The fundamentals of dietetics are presented in language befitting the academic training of nurses and in an easy flowing manner that maintains interest. The lectures are well balanced with practical demonstration work. All essential topics of dietetics are covered in sufficient detail to enable the nurse to undertake her duties in practice intelligently. The simple classification of topics is convenient for quick reference. The general information on specific diets for disease conditions is helpful and practical. The book along its present lines is sufficiently meritorious to deserve frequent revisions to keep it abreast of dietetic developments.

Trauma, Disease, Compensation: A Handbook of Their Medico-Legal Relations. By A. J. Fraser, M.D., Chief Medical Officer, Workmen's Compensation Board, Winnipeg. Cloth. Price, $6.50 net. Pp. 524. Philadelphia: F. A. Davis Company, 1930.

The author has compiled the opinions of physicians, surgeons, industrial boards and courts concerning the relations of many diseases and injuries to trauma of all kinds and to other occupational hazards. These opinions range over the entire medical field, from status lymphaticus, angioneurotic edema and auricular fibrillation to hernia, fractures, caisson disease and injuries to the spinal cord. The book thus affords ready access to many important opinions. Its usefulness is greatly diminished, however, by the looseness of its citations to original sources. Most readers, in order to learn the facts, hypotheses and theories on which the opinions are based, will find it necessary to read them in the words of those who expressed them. Without such appraisal, the weight to be given an opinion cannot be determined by courts and industrial boards, and the opinion is of no value to the expert witness in formulating his own opinions and supporting them in the face of cross-examination. Statements of the exact sources of the opinions abstracted, giving the year of publication and citing volume and page numbers, would have relieved from much labor those who use the book and would have added greatly to its usefulness.

Vom Lokalisationsproblem der artikulierten Sprache. Von Erwin v. Niessl-Mayendorf. Aus dem Institut für Hirnforschung der Universität Leipzig, Direktor Prof. Dr. Schröder. Paper. Price, 24 marks. Pp. 186, with 70 illustrations. Leipzig: Johann Ambrosius Barth, 1930.

After studying a case of motor aphasia with such multilocular and extensive destructions of the brain that it hardly appears suitable for any valid conclusions, the author feels entitled to assert that the aphasic symptoms were due to the interruption of the association fibers (arcuate bundle) connecting the left auditory center (almost completely destroyed, left internal geniculate body atrophic!) with the lower segment of the left precentral convolution. The motor aphasia was not due to the destruction of the left operculum of Broca, which was found on both sides intact. There does not exist, according to von Niessl-Mayendorf, a special motor center for speech in the Broca region; the cortical speech mechanism is composed merely of two stations: of a sensory region close to the auditory projection center (and perhaps including the latter), and of the lower portion of the precentral convolution, which is identical with the region wherefrom efferent pyramidal fibers of the tongue, lips and face arise. Thus the same cortical motor centers are involved in the motor speech that are otherwise active in movements of the corresponding groups of muscles. A separate superimposed motor center that would be concerned with the motor speech alone and would direct the action of the precentral motor foci does not exist. Accordingly, there does not exist an anatomically preformed motor speech mechanism. The true speech center is the temporoparietal region. (This is the maximum that von Niessl-Mayendorf concedes to the localistic point of view, since "the anatomically preformed center of speech must be denied, though a localizable physiological speech mechanism must be accepted"!) There the speech is localized, although "only in a diffuse way." The impulses arising in this speech center arrive by way of the association fibers directly to the precentral motor foci. If these association connections are interrupted, the result is the impairment of the motor speech with the receptive function in speech preserved.

In general, von Niessl-Mayendorf rejects the concept of the localization of speech as of most other functions in narrow cortical localities. Speech is, according to him, a product of a finely adjusted integration of the activity of many parts of the cortex, especially of the sensory regions. This is in accord with his views on the organization and function of the cerebral cortex in general. Though these views appear in many points contradictory and inconsistent, the salient point is the rejection of Flechsig's division of the cortex into projection and association regions. The so-called projection regions participate also in "higher" processes. Already the most primitive sensory function is not merely a physiologic but a psychic process as well. The same regions of cortex when stimulated from the receptor organs produce subjective "impressions," give rise to "memory images" when stimulated from within. There do not exist, therefore, separate association as mnemonic regions, distinct from the projection areas. The cerebral function nowhere can be localized and uses as its instrument of expression both hemispheres, which work as a whole. In such a way von Niessl-Mayendorf identifies himself with the rest of modern decentralists (Pierre Marie, Monakow et al.). The morphologic investigation of the cerebral cortex, according to him, has no validity. There does not exist a parallelism between the form-structure and the function. The morphologic differentiation of the cortex has no importance, there exists only a physiologic difference in cortical loci. The human speech can never be based on the presence of certain cells or a special cortical architecture, but exclusively on a purely functional combination of certain cell groups, which never are embodied into the anatomic structure. The author will have a hard task to convert modern neurologists to his conceptions, least of all by using these arguments and by rejecting others which must be accepted as facts by every unbiased scientist.

Introduction to Physiological Chemistry. By Meyer Bodansky, Ph.D., Director of Laboratories, John Sealy Hospital, Galveston. Second edition. Cloth. Price, $4 net. Pp. 542, with 46 illustrations. New York: John Wiley & Sons, Inc., 1930.

This, like the first edition, is an excellent textbook for medical students. The general plan of the original edition is adhered to with the addition of a chapter on the source and composition of foodstuffs and another on the composition of milk and certain tissues. Much of the material has been rewritten and extended so as to include the more recent advances, thus resulting in the addition of approximately 100 pages. The work is well indexed and the more important recent observations referred to in the text are made much more valuable by references to the original articles. The author is to be congratulated on his success in presenting so much and so many types of material in a well organized manner without sacrificing style and accuracy too much.

A System of Clinical Medicine Dealing with the Diagnosis, Prognosis, and Treatment of Disease for Students and Practitioners. By Thomas Dixon Savill, M.D. Eighth edition. Leatherette. Price, $10 net. Pp. 1019, with 167 illustrations. New York: William Wood & Company, 1930.

The author endeavors to cover the field of medicine in one volume which, while growing somewhat from edition to edition, still remains a handy size. It has been necessary, however, to use much small type. The first chapter remains just as the author wrote it for the first edition. The first part of each chapter deals with symptoms and their causes. Another feature is italicized paragraphs in part C at the head of each chapter which deal with a separate malady and emphasize the features for which one disease may be differentiated from another in the same group. Every part of this edition has been revised, many of the chapters have been recast, and new matter has been added on such subjects as tularemia, undulant fever, insulin coma, liver therapy, quinidine treatment and coronary thrombosis. There are many pictures, a few in color.

Recent Advances in Chemotherapy. By G. M. Findlay, O.B.E., M.D., D.Sc., Wellcome Bureau of Scientific Research, London. With a foreword by C. M. Wenyon, C.M.G., C.B.E., M.B., Director-in-Chief of the Wellcome Bureau of Scientific Research, London. Cloth. Price, $3.50. Pp. 532, with illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1930.

This is an interesting history of chemotherapeutic agents and their effects on certain diseases. Each chapter is a digest of the results obtained on one disease, and each is followed by references to the original literature, making the volume bibliographically valuable. Much of the text is concerned with diseases due to protozoa, spirochetes and helminths, because most of the chemotherapeutic work has been along this line. Many of the diseases mentioned are much commoner in other countries than in the United States. The book is really a review of the literature and not a critical evaluation of the status of the various drugs. Conspicuous by its absence is the lack of excellent opinions by some American authors, including the many reports of the Council on Pharmacy and Chemistry. This may be due to the fact that the book emanates from the Burroughs Wellcome employees and naturally would be flavored with the English attitude. The field is one that is in need of good reference books. To some extent Findlay's contribution will fulfil the need and should be in the library of those interested in chemotherapy. It is not, however, as authoritative a treatment as is the book of Kolmer in the limited field of chemotherapy of syphilis.

The Principles of Bacteriology and Immunity. By W. W. C. Topley, M.A., M.D., M.Sc., Professor of Bacteriology and Immunology, University of London, and G. S. Wilson, M.D., M.R.C.P., D.P.H., Reader in Bacteriology and Immunology in the University of London. In two volumes. Cloth. Price, $15 net. Pp. 1300, with 242 illustrations. New York: William Wood & Company, 1929.

In the medical curriculum, the demands on the student's time are so great as to permit only the merest acquaintance with the fundamentals of bacteriology, various conceptions of immunity and the relationship of this knowledge to the diagnosis and treatment of diseases. Bacteriology is a profession in itself, and its applications extend to every phase of human existence. Knowledge grows constantly, and there is need for a complete systematic reference to facts and current conceptions in this field. The book is divided into four parts including general bacteriology, systematic bacteriology, infection and resistance and the application of bacteriology to medicine and hygiene. Thus, while volume I will be for the physician merely a reference work, volume II is for any medical reader a means of bringing himself up to date and acquainting himself with all that is known and established concerning the control of infectious diseases. The book is thorough, with complete references to medical literature. The history, causes, methods of infection, serology, diagnosis, prevention and treatment of infectious disorders is fully elucidated. Each chapter is followed by a carefully prepared bibliography, and a good index makes reference to any special subject simple.

A Text-Book of Materia Medica for Nurses Including Therapeutics and Toxicology. By George P. Paul, M.D., C.P.H. Sixth edition. Cloth. Price, $1.75 net. Pp. 356. Philadelphia: W. B. Saunders Company, 1930.

The value of this volume would seem to be chiefly as a work of reference, for one certainly could not expect a nurse to memorize, much less to comprehend, the barrage of facts it directs against her. It is a good deal like a compend intended for medical students. Special commendation must be given the care with which are detailed the "pretoxic signs" or warnings of the beginning of toxic effects. The use of the old system of weights and measures throughout the book is one of the evidences of the conservative, not to say reactionary, tendency of the author.

Report on a Study of the Nasopharyngeal Bacterial Flora of a Group of the Manchester Population During the Period July, 1925, to September, 1927. Ministry of Health. Reports on Public Health and Medical Subjects, No. 58. Paper. Price, 6d. net. Pp. 29. London: His Majesty's Stationery Office, 1930.

This pamphlet is a report on a bacteriologic study of greatest interest and the size of the publication is no criterion of the immense amount of intelligent, painstaking labor that must have been put into the investigation. Proceeding under the assumption that there might possibly be a change in the bacterial flora of the throat and air passages of normal persons before an epidemic of acute respiratory disease, and that, from knowledge gained, means for prevention might be taken, a systematic survey of a large enough number of individuals over what was considered a fair period of time was undertaken. It was recognized how difficult such a study of influenza would be, when the causative organisms among other important factors are not well understood. The workers appreciated, too, as they stated, that while considerable information is present regarding the normal flora of the upper air passages, fluctuations due to persons and in relation to influenza and other infections have not yet been thoroughly studied. The organisms studied were pneumococci, influenza bacilli, gram-negative cocci and hemolytic streptococci. Interesting charts are given and attempts made to correlate the laboratory observations with the actual incidence and mortality from respiratory diseases over the period covered. There occurred a succession of epidemiologic events that were associated with a series of changes in the bacteriologic flora of a fairly large group of normal individuals. The report is highly recommended for study to all physicians interested in infections of the upper respiratory tract, their bacteriology and their seasonal and epidemiologic variations.

The Candirú: The Only Vertebrate Parasite of Man. By Eugene Willis Gudger, Ph.D., Bibliographer and Associate in Ichthyology, American Museum of Natural History, New York City. With a foreword by Aldred Scott Warthin, Ph.D., M.D., LL.D., Professor of Pathology and Director of the Pathological Laboratories in the University of Michigan, Ann Arbor. Cloth. Price, $1.50. Pp. 120, with 18 illustrations. New York: Paul B. Hoeber, Inc., 1930.

This is a corrected and enlarged reprint of an article in the *American Journal of Surgery,* June, 1930. Candirú is the collective name given to certain small catfishes of the Amazon River and its tributaries to which is assigned "the evil habit of entering the urethra of men and the vulva of women bathers, particularly if they micturate while in the water." The author has published interesting articles on live fishes impacted in the food and air passages of man, on poisonous fishes and fish poisons, and on stitching wounds with the mandibles of ants and beetles. In "The Candirú" he deals with another picturesque and out-of-the-way topic. A mass of testimony is set forth bearing on the curious habits of the little catfish of the Amazon basin, and the evidence does indicate that the fish may penetrate the urethra or vagina with painful and disastrous results. The story is well written, but evidence is not presented to warrant designating the candirú as "the only vertebrate parasite of man." Occasional entrance into a natural passage of the body does not constitute parasitism.

Hypertension. By Leslie T. Gager, M.D., Clinical Professor of Medicine in the George Washington University. Cloth. Price, $3. Pp. 158. Baltimore: Williams & Wilkins Company, 1930.

The gradually growing list of American monographs on medical subjects is enhanced by this fine contribution. The author has studied under leaders in the field of investigation concerned, and has extended his studies to the most recently available literature, which is covered in a bibliography containing some five hundred references included in the book. The monograph covers the subject of hypertension completely from the definition through the symptomatology, incidence, prognosis and treatment. It is sound in that it avoids strange notions and unestablished conceptions. By its aid the general practitioner will be enabled to come quickly abreast of modern methods of diagnosis and treatment and will receive a correct evaluation of new diets and new drugs used in the control of this condition.

A Text-Book of Psychiatry for Students and Practitioners. By D. K. Henderson, M.D., F.R.F.P.S., Physician-Superintendent, the Glasgow Royal Mental Hospital, and R. D. Gillespie, M.D., M.R.C.P., D.P.M., Physician for Psychological Medicine, Guy's Hospital, London. Second edition. Cloth. Price, $5.50. Pp. 526. New York: Oxford University Press, 1930.

The first edition of the book, published in May, 1927, has had a considerable success, and the authors have taken advantage of suggestions made by friends, and of additions to our knowledge of psychiatry, to make minor changes in the second edition. It is an objective presentation of psychiatric conditions. The case reports are detailed, the classification is modern, and the book, therefore, is one of the most suitable available for both the student and the practitioner. In the discussion of the treatment of epilepsy, too little is said concerning advantageous methods. The ketogenic diet is barely mentioned, and a great deal of space is given to diagnosis. The section on relation of psychiatry and the law is limited almost wholly to conditions in England and Scotland and will mean little to the American reader.

The New Evolution: Zoogenesis By Austin H Clark, U S. National Museum. Cloth. Price, $3. Pp 297, with illustrations Baltimore: Williams & Wilkins Company, 1930.

Since much of the furor in the argument between the fundamentalists and the evolutionists has died down, current interest in volumes concerning the subject may be said to be limited to students. Mr. Clark conceives the evolution of mankind as a part of a systematic process of evolution which he entitles "zoogenesis." He cites evidence to indicate that intelligence and reason are simply mental attributes that we think we understand, while instinct is a mental attribute we know we do not understand. Mr. Clark does not accept any theory of the origin of man from the anthropoid apes. Whereas evolution presupposes a gradually progressive process leading toward higher forms, zoogenesis indicates an independent development of all sorts of forms modified by numerous unusual conditions. The author believes that life at its very earliest developd at once and simultaneously from the single cell in every possible direction. Certainly, the evidence he submits to support his contention is sufficient to arouse belief in its reason.

Applied Physiology. By Samson Wright, M.D., M.R.C.P., Lecturer in Physiology, University of London, King's College. With introduction by Swale Vincent, M.D., LL.D., D.Sc., Professor of Physiology, University of London. Third edition. Cloth. Price, $5.50. Pp. 552, with 128 illustrations. New York: Oxford University Press, 1929.

More and more, medicine is getting back to a recognition of normals in both structure and function; hence, the popularity of a book like this one on applied physiology. The third edition takes into account many new observations, such as new tests for pregnancy, the utilization of fat and the conditional reflexes. The book has been carefully revised and new illustrations have been added. It is one of the most scientific and practical books available for the reader who wishes to keep abreast of the newer knowledge of physiology.

The Treatment of Schizophrenia. By Leland E. Hinsie, M.D., Professor of Clinical Psychiatry, College of Physicians and Surgeons, Columbia University. Cloth. Price, $3. Pp. 206. Baltimore: Williams & Wilkins Company, 1930.

This small volume contains a modern description of schizophrenia and summarizes the present-day trend of psychiatrists and psychoanalysts as well as medical men in general with regard to the treatment of schizophrenia. It is a well written and easily understandable monograph.

Children Are Like That. By C. Madeleine Dixon. Boards. Price, $2.50. Pp. 206, with illustrations. New York: John Day Company, 1930.

The author of this book has had experience in the management of nursery schools and in physical education in various groups. She is committed to teaching by play methods, leaving the child to develop its own urges, the parents and the teachers intervening when there is necessity for teaching good habits, danger of excesses or unbalanced choosing. She emphasizes especially the need for rest and serenity, for pleasure and the satisfaction of curiosity. The book is written in a playful tone, as though written for children rather than for adults. It is full of close observations of child life. The author recites commonplaces and puts them in italics, as though they were the observations of a new Plato or Socrates. Because of this method of presentation, the book is, for an adult, exceedingly tiresome. The illustrations are charming and the presentation of the book in the best style of the John Day press.

Doctor, Tell Me! By Charles M. Jacobs, M.D. Paper. Price, $2.50. Pp. 96, Springfield, Massachusetts: Victa Publishing Company, 1930.

This pamphlet is devoted to a few brief notes of information concerning the human body and its functions in health and disease. The price is exorbitant, since far more may be had for the same money from many other sources. In general the advice is sound.

The First Year of Life By Charlotte Bühler. Translated by Pearl Greenberg and Rowena Ripin. Cloth. Price, $3.50. Pp. 281, with illustrations. New York: John Day Company, 1930.

While this book is a refreshing escape from the usual literary effusion on the charms of babyhood, it does not fulfil the purpose assigned to it by the publishers. It is the first English translation of Charlotte Bühler's work on child psychology. As such it is a valuable contribution to American workers in this field. The author presents a scientific formulation of mental manifestations of growth during the first year of life on the basis of careful and painstaking observations. The text is divided into two parts by the translators. In the first part methods of observation, discussion of these observations and a quantitative analysis of the data are given. The second part deals with tests designed for the baby during the first two years of life and a discussion of these tests. The methods of study employed appear to be an extension of those of Arnold Gesell and his workers, with an attempt to formulate a standard of the average normal development for the first year of life. For those scientifically interested in child psychology, the data will be most interesting. However, it is doubtful whether the observations, valuable as they are, can be of much practical value for modern parents and nurses.

Medicolegal

Revocation of License for "Conviction" for Crime

(Donnell v. Board of Registration of Medicine (Me.), 149 Atl. 153)

The Medical Practice Act of Maine provides that the board of registration of medicine may revoke a license of any person, to whom a certificate has been issued by them, "after a conviction before a proper court, for crime in the course of professional business." The plaintiff, Donnell, a licensed physician, was indicted and tried for manslaughter. The verdict of the trial jury was "guilty," and after a motion for a new trial had been overruled, he appealed. Thereafter the board of registration of medicine, pending the appeal, after notice and hearing, revoked the certificate and canceled his registration. On a petition for a writ of certiorari to the Supreme Judicial Court of Maine, Donnell contended that he had not been "convicted" within the meaning of the section of the medical practice act quoted; that the return of a verdict of guilty is not the "conviction" which by the statute is a prerequisite to revocation of his certificate. With this contention the Supreme Judicial Court agreed, and quoted as follows from *Munkley v. Hoyt,* 179 Mass. 108, 60 N. E. 413, 414:

> We are of the opinion that the accused stands before the board of pharmacy exactly as before the court where his guilt has been established by his plea or by a verdict of a jury. If in that court his case is ripe for sentence, it must be considered as ripe for sentence before the board. It is the intention of the statute to give a pharmacist charged with a crime the right to a trial in the court having jurisdiction of his offense; but, if his guilt be there established, so that the court may impose sentence according to its powers, then it is sufficiently established for the board of pharmacy to act upon their finding, and to impose the penalty according to their powers.

In the present case, the court said, an issue "remains to be determined"; the case is not "ripe for sentence." The end of a criminal case is not reached when an appeal follows verdict; the case is pending, notwithstanding verdict and sentence. It goes without saying that the "determination" of the case on appeal may not end it. A new trial may be granted. The indictment, in that event, remains, and on the grave charges thereunder another trial must speedily follow, in the course of which the court must instruct the jury that the presumption of innocence, at the threshold of trial, protects the defendant. The Supreme Judicial Court held therefore that, pending the outcome of the appeal, Donnell had not been "convicted" within the meaning of the medical practice act.

Employment of Nurse Under Compensation Act

(Ranney Rig Building Co. v. Givens (Okla.), 285 P. 23)

March 7, 1924, one McFadden, in the course of his employment with the Ranney Rig Building Company, accidentally suffered a broken back, causing paralysis of his arms and of parts below. The company had him placed in a hospital, in the care of a Dr. McElroy. A sister of McFadden requested that he be sent to the home of his parents in another state. Dr. McElroy acquiesced in his removal, on condition that a nurse make the trip with him. Under the direction of the physician, and without consulting the employer, the hospital secured a nurse, a Miss Givens, who accompanied McFadden on his trip and attended him from May 12, 1924, to Aug. 27, 1924. The nurse was awarded $540, or $5 a day, for her services by the state industrial commission and the company appealed to the Supreme Court of Oklahoma. It was admitted that $5 a day was a reasonable charge for the services of the nurse and was the amount the company would have been required to pay had McFadden remained at the hospital. The company contended, however, that no person could recover for medical services, in a compensation case, rendered without the direct authority of the employer or the insurance carrier, where proper medical and hospital services were already being supplied. In support of this contention the company cited the section in the workmen's compensation act to the effect that an employee has the right to procure medical services on his own initiative only where an emergency exists immediately after the accident or where an employer has refused or neglected to supply such services. At the time of McFadden's removal, the court said, the company admitted the necessity of medical attention for him and the evidence was sufficient to show that Dr. McElroy concurred in the employment of the nurse. McFadden was placed in charge of Dr. McElroy by the employer and the physical condition of McFadden, being such that he was unable to feed himself or to move his hands or legs, and the fact that he had to be catheterized every two or three hours, indicated that a nurse was necessary. Although no direct authority was given to Dr. McElroy to employ the nurse, the court said, we think his authority under the circumstances would be implied.

The company contended, finally, that the nurse had no legal right to collect for services rendered after sixty days from the injury, unless there had been an application to the industrial commission for an order for further medical aid. Under the facts in this case, the court said, we cannot see the necessity of a determination by the commission. The whole record discloses that there was no dispute between the parties as to the necessity of medical and nurse's services after the sixty day period. At the time of the removal of McFadden from the hospital, the sixty day period had already expired and the need for further treatment was fully recognized by the company as well as by the physician. Under such circumstances, the court thought it would be entirely unnecessary to make an application to the industrial commission to determine whether or not medical aid was needed further.

Having found no error in the record, the Supreme Court affirmed the award of the industrial commission.

Hospital: Liability for Injury to Special Nurse.—A private nurse engaged in work in a hospital in the employ of a patient is an invitee of the hospital and the hospital owes a duty to such nurse to have its premises in a reasonably safe condition and to give warning of latent or concealed perils. There is no liability, however, for injuries from dangers that are obvious, which are as well known to the nurse as to the hospital. If, therefore, a special nurse is injured by reason of slipping on a floor, the hospital is not liable where the nurse knew of the slippery condition of the floor and continued to walk on it.—*Mautino v. Sutter Hospital Ass'n. (Calif.) 28 P. 369.*

Privileged Communications: Physicians May Be Compelled to Testify Under Common Law Rule.—In most jurisdictions, communications between a physician and his patient arising from the professional relations are deemed of such confidential nature that the hands of justice do not demand disclosure and statutes have been enacted excluding them as evidence on objection. At common law, however, there was no such privilage and, in the absence of statute, such evidence is competent and a physician may be compelled to testify.—*Louisville & N. R. Co. v. Crockett's Adm'x. (Ky.), 24 S. W. (2d) 580.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.
American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.
Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, New York, Secretary.
Southern Surgical Association, Lexington, Ky., December 9-12. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal Diseases of Children, Chicago

40: 705-940 (Oct.) 1930

*Alkalosis of Vomiting and Acidosis of Advanced Renal Disease. T. G. H. Drake, P. Marsh and J. L. Gamble, Boston.—p. 705.
*Effects of Insulin and Epinephrine on Blood Acetone in Fasting Children. L. Salomonsen, Oslo, Norway.—p. 718.
*Physiologic Variations in Inorganic Blood Phosphorus Content at Different Age Periods. J. K. Bullock, New Orleans.—p. 725.
*Cerebrospinal Fluid of Premature Infants. J. Glaser, Rochester, N. Y. —p. 741.
*Suspected Juvenile Tuberculosis. F. Eberson, J. P. Delprat and E. Wolff, San Francisco.—p. 753.
*Immunity: II. Effect on Skin Tuberculin Reaction of Nonspecific Factors. B. Eddy and A. G. Mitchell, Cincinnati.—p. 771.
Intubation Under Control of Sight. A. F. Pushkin, Leningrad, U. S. S. R. —p. 776.
Optimum Conditions for Precipitation of Casein from Human and from Cow's Milk. C. C. Wang and A. A. Wood, Chicago.—p. 787.
*New Cereal Mixture Containing Vitamins and Mineral Elements. F. F. Tisdall, T. G. H. Drake and A. Brown, Toronto, Canada.—p. 791.
Photosensitivation. C. B. Strauch, Milwaukee.—p. 800.
Bone Suppuration and Renal Calculi in Children. M. C. Borman, Milwaukee.—p. 804.
Hyperplasia of Corpora Adiposa Buccarum in New-Born Infant. F. C. Neff and J. A. Billingsley, Kansas City, Mo.—p. 813.
Psychiatric Aspects of Enuresis. F. N. Anderson, Los Angeles.—p. 818.
Geronimo Soriano, 1575—?. J. Ruhräh, Baltimore.—p. 851.

Alkalosis of Vomiting and Acidosis of Advanced Renal Disease.—The data presented by Drake et al. show the changes in the ionic composition of the blood plasma produced by continued vomiting and those found in the presence of advanced renal disease. The extent of repair obtained by the subcutaneous and intravenous injection of water and the substances indicated is also recorded by means of direct measurements of the chief factors of plasma structure.

Effect of Insulin and Epinephrine on Blood Acetone in Fasting Children.—In fasting children less than 3 years of age, an investigation was made by Salomonsen on the effect of insulin and epinephrine on blood sugar, on blood acetone and on the content of fatty acids in the blood plasma during the hours immediately following the injections. In eight experiments it was found that insulin reduces the blood acetone, but in decreasing degree according to the decrease of sugar in the organism. Epinephrine under the same conditions produces an increase in the blood acetone, the increase being greater in proportion as the organism is more poorly supplied with sugar. In one experiment, insulin effected a distinct decrease in the content of fatty acids in the blood. In five of six experiments, injection of epinephrine was followed by a rise in the quantity of fatty acids.

Inorganic Blood Phosphorus Content at Different Age Periods.—It would seem reasonably certain from the results reported by Bullock that there is a significant relationship between the high phosphorus levels and the age periods of most active growth.

Cerebrospinal Fluid of Premature Infants.—Evidence is advanced by Glaser in support of a theory that physiologic xanthochromia of the premature new-born infant, and probably of all new-born infants, occurs because of anatomic and physiologic immaturity of the blood-cerebrospinal fluid barrier. A case of primary pneumococcus meningitis is reported in a premature infant aged 8 days. A theory is offered to explain the paroxysmal or intermittent cyanosis occurring in premature infants with subtentorial meningeal hemorrhage on the basis of intermittent pressure by blood clot on the medulla oblongata. A chart is shown, illustrating the relationship between the icterus index of the blood serum and the icterus index of the cerebrospinal fluid. This curve reaches its peak during the second and third weeks of life.

Suspected Juvenile Tuberculosis.—A clinical and roentgen study of 306 cases of suspected juvenile tuberculosis has been made by Eberson et al. with especial reference to the evaluation of nine clinical symptoms, ten clinical signs, nine roentgen observations and the tuberculin test. The data were subjected to exhaustive statistical analysis. Evidence presented shows that commonly accepted clinical symptoms and signs have no diagnostic significance unless these are definitely correlated with positive tuberculin tests and roentgen observations that are positive for tuberculosis.

Skin Tuberculin Reaction of Nonspecific Factors.—As a result of two years' study in which several thousand tuberculin tests were performed, Eddy and Mitchell believe the conclusion warranted that there is often a depression of skin response to tuberculin in acute diseases. During the acute stage of such diseases as measles, diphtheria, scarlet fever and other acute conditions accompanied by febrile reactions, the tuberculin test which had previously been positive may become negative, returning to positive again during convalescence. This is shown by the fact that eleven of sixteen children who were known to have positive tuberculin reactions had no skin response to tuberculin during acute febrile illness. It is further supported by the fact that, of 159 children who had positive tuberculin reactions during convalescence from acute diseases, only 49 had positive tests during the febrile stage of these diseases. The depression of skin response does not seem to be peculiar to any disease or diseases but depends rather on the severity and the fact that there is a febrile state present.

Cereal Mixture Containing Vitamins and Mineral Elements.—The cereal combination devised by Tisdall et al., in addition to supplying calories, furnishes minerals and vitamins in appreciable amounts. It consists of wheat meal (farina), 53 per cent; oat meal, 18 per cent; corn meal, 10 per cent; wheat germ, 15 per cent; bone meal, 2 per cent; dried brewers' yeast, 1 per cent, and alfalfa, 1 per cent. It resembles the ordinary finely milled part grain cereals in that it is very palatable and does not produce a laxative or irritating effect on the intestinal tract. After the ingredients are ground, mixed and dried at a temperature of 70 C. for thirty minutes, the mixture will keep indefinitely. The minerals are obtained chiefly from the bone meal, wheat germ and alfalfa. One hundred grams (3½ ounces) of cereal contain as much calcium as 22 ounces of milk. The iron content is almost twice that of egg yolk, our highest source of iron in food. Copper is present in good concentration, 1.3 mg. per hundred grams of cereal. As the average infant and child consumes from 1 to 2 ounces of dry cereal a day, the calcium in this amount of cereal mixture is equivalent to that contained in from 6 to 12 ounces of milk. The amount of iron in 1 ounce of dry cereal mixture is slightly greater than the amount contained in two egg yolks. The cereal mixture has been used almost exclusively for the past three months in the Hospital for Sick Children, an institution with more than 300 beds. It has been found to be just as palatable as any of the finely milled cereals at present so widely used.

American Jour. Obstet. & Gynecology, St. Louis

20: 441-594 (Oct.) 1930

Postsalpingectomy Endometriosis (Endosalpingiosis). J. A. Sampson, Albany, N. Y.—p. 443.
*Ovarian and Pituitary Changes Associated with Hydatidiform Mole and Chorio-Epithelioma. E. Novak and A. K. Koff, Baltimore.—p. 481.
Etiology of Dysfunctional Uterine Bleeding. W. P. Graves, Boston.—p. 500.
Question of Possible Endometrial Trauma and Dislocation Associating Uterotubal Insufflation. I. C. Rubin, New York.—p. 519.
*Postoperative Obstetric Embolus: Incidence, Cause and Prevention. J. O. Polak and V. Mazzola, New York.—p. 529.
Fetal Malformations in Multiple Pregnancy. F. L. Adair, Chicago.——p. 539.
*Granulosal-Cell Tumors of Ovary and Relation to Postmenopausal Bleeding. R. W. Te Linde, Baltimore.—p. 552.
Early Diagnosis of Adnexal Cancer. B. M. Anspach, Philadelphia.—p. 571.
Treatment of Salpingitis by Local Injection of Turpentine. H. M. Little, Montreal.—p. 582.

Ovarian and Pituitary Changes Associated with Hydatidiform Mole and Chorio-Epithelioma.—Novak and Koff made a study of two cases of hydatidiform mole and two of chorio-epithelioma, in all of which the ovaries were available for study, while in one of the cases of chorio-epithelioma a histologic study of the pituitary was also possible. Histologic studies, such as those included in this report, and also the biochemical studies which have been described by a number of authors, leave little doubt that the anterior pituitary is the immediate cause of the lutein hyperreaction seen in the ovaries of such cases. These studies indicate that the hyperluteinization involves both the granulosa and the theca interna. The histologic study of the anterior pituitary in one of the cases of chorio-epithelioma showed an abnormally marked and persisting pregnancy reaction. This observation, for the first time, offers a histologic explanation for the persistence of the pregnancy test long after removal of the primary tumor, as has been reported by two or three recent authors. This abnormally persistent pregnancy reaction in the pituitary, with the persistence of the pregnancy test, is believed to be due to the presence of considerable masses of trophoblastic tissue in the metastases, as was almost certainly the case in this patient. In short, the evidence indicates that the interreaction is a triangular one, the trophoblastic increase being responsible for the pituitary reaction, and the latter, in turn, calling forth the abnormal ovarian response.

Postoperative Obstetric Embolus.—The total incidence of thrombosis and embolism in 12,000 gynecologic and obstetric cases was found by Polak and Mazzola to be 0.5 per cent. The number of thromboses in the obstetric group is double the number in the gynecologic. Embolism predominates after gynecologic operations, thrombosis in obstetric deliveries. Thrombosis following operation is more liable to cause embolism than when it occurs following delivery. Emboli following operation are more fatal than those following delivery. The appearance of the clinical symptoms of thrombosis and embolism usually occurs between the second and third weeks, about the time when patients are allowed out of bed. Mortality rate is higher in patients more than 40 years of age. In the series the number of patients more than 40 years of age is greater in the gynecologic group. Morbidity was found to be present in 100 per cent of cases; infection is therefore a factor that must be considered. Obesity, hypotension, leukopenia, albuminuria, pregnancy, age, fibroids, anemia, toxemia—all predispose to venous stasis. Experimentally, torsion leads to varicosities, stasis and thrombosis with a generalized hyperplasia and hypertrophy of all contiguous tissues.

Granulosal-Cell Tumors of Ovary and Relation to Postmenopausal Bleeding.—Three cases of granulosal-cell tumor of the ovary and one of the closely related oophoroma folliculare are reported by Te Linde and described histologically. The histogenesis of granulosal-cell tumors is discussed. Evidence has been produced in the form of an extremely early tumor which would indicate that the probable origin is from embryonic rests of ovarian parenchyma in the medullary portion of the ovary. Clinically, the tumors occur most frequently after the cessation of the menses and are usually associated with bleeding. The importance of early diagnosis and operation is emphasized, particularly because the tumors are sufficiently benign to offer an excellent chance of surgical cure.

American Journal of Pathology, Boston

6: 499-629 (Sept.) 1930

Significance of Muscular Stroma of Argentaffin Tumors (Carcinoids). P. Masson, Montreal.—p. 499.
*Metastasizing Carcinoid Tumor of Jejunum. I. Gáspár, Rochester, N. Y.—p. 515.
Reticulum: Origin; Occurrence of Reticulum Fibrils in Capillary Endothelium; New Method of Demonstration. II. Finer Capillary Bed. J. F. Rinehart, San Francisco.—p. 525.
Diagnosis of Intracranial Tumors by Supravital Technic. L. Eisenhardt and H. Cushing, Boston.—p. 541.
*Small Cell Carcinomas of Lung. H. T. Karsner and O. Saphir, Cleveland.—p. 553.
*Skeletal Metastases in Carcinoma of Thyroid. I. Levin, New York.—p. 563.
*Multiple Gummas of Heart in New-Born. J. W. Williams, New Orleans.—p. 573.

Metastasizing Carcinoid Tumor of Jejunum.—A case of multiple carcinoid tumors of the jejunum, one of which caused intestinal obstruction, with metastases in the mesentery and liver, is reported by Gáspár. Histologic examination revealed the picture of typical carcinoid tumors. Serial sections definitely indicate that at least two of the tumors originated in the crypts of Lieberkühn. Positive silver impregnation of the tumor cells confirmed Masson's contention that the origin of carcinoid tumors is in the Nicholas-Kulchitzky-Masson cells in the glands of Lieberkühn.

Small Cell Carcinomas of Lung.—Karsner and Saphir base their discussion on twenty-five cases seen by them. They believe that small cell primary tumors of the lungs or bronchi are epithelial in character, as indicated by cell arrangement, relation of connective tissues and blood vessels, and complete absence of capacity to form reticulum. Small cell cancers of the lung originate in bronchi or bronchioles and are probably unicentric in origin. Small cell cancers of the lung more frequently produce large mediastinal masses than do other cancers of this organ and are firmer in consistency, but in other clinical and gross pathologic aspects they do not show distinctive characters.

Skeletal Metastases in Carcinoma of Thyroid.—Three cases of metastases in the skeleton secondary to carcinoma of the thyroid are reported by Levin. In all three cases the clinical symptom complex as well as the evident pathologic condition was caused by tumors in the bone. While the primary tumor in the thyroid was insignificant, both pathologically as well as clinically, compared with the condition in the skeleton, as a result in all three cases, the primary condition was overlooked. Levin urges that in a search for a primary malignant tumor, in a female, next to the breast, the thyroid must be thought of, and in a male, next to the prostate, the thyroid must be considered as the most probable seat of a primary tumor. Such a diagnostic analysis is of importance not only from the theoretical but also from the practical clinical standpoint.

Multiple Gummas of Heart in New-Born.—A case of gumma of the heart in a Negro infant that died a few hours after birth is reported by Williams. The term gumma as descriptive of the lesion is questioned since the microscopic picture is at variance with that of a gumma. The terms localized syphilitic cellulitis and fulminative syphilitic myositis are suggested in its stead as descriptive of this lesion since it is characterized by muscle destruction and infiltration with lymphocytes, polymorphonuclear leukocytes, monocytes and plasma cells.

American Journal of Psychiatry, Baltimore

10: 203-364 (Sept.) 1930

Physiogenic and Psychogenic in Schizophrenia. E. P. Bleuler, Zurich.—p. 203.
Variability of Mental Ratings in Retests of Neuropsychiatric Cases. E. L. Schott, Detroit.—p. 213.
*Boltz (A. A. S.) Test in Cerebrospinal Fluid. B. S. Walker and F. H. Sleeper, Boston.—p. 229.
Physiopathologic Significance of Meningeal Permeability. S. Katzenelbogen, Baltimore.—p. 235.
Incidence of Syphilis in Insanity. F. Proescher and A. S. Arkush, Agnew, Calif.—p. 245.
*Spinal Drainage in Alcoholic Deliria and Other Acute Alcoholic Psychoses. H. Goldsmith, Baltimore.—p. 255.
Paranoia: Case. T. Butterworth and J. McIver, Philadelphia.—p. 267.
Random Notes on History of Psychiatry of Middle Ages. S. E. Jelliffe, New York.—p. 275.
Simultaneous Occurrence of Psychosis in All Members of Family Group. S. S. Cottrell and F. L. Vibber, Harding, Mass.—p. 287.

Boltz (A. A. S.) Test in Cerebrospinal Fluid.—Summing up the reports of clinical investigators, Walker and Sleeper found that: (1) Fluids from untreated patients with dementia paralytica give strongly positive Boltz reactions in about 95 per cent of all cases investigated; (2) positive reactions are obtained in many other conditions, whether or not syphilis is present; (3) in neurosyphilitic cases, treatment tends usually to reduce the intensity of the reaction, and (4) in cases in which protein has also been determined in the fluid, the intensity of the Boltz reaction varies with the protein content. It is obvious that the Boltz reaction is not in any way specifically diagnostic for neurosyphilis. As a means of rapidly estimating the amount of protein in the spinal fluid, either as a diagnostic aid or as a guide in treatment, it seems to have a definite and valuable use. It is extremely doubtful whether the test can ever be made really quantitative even by the use of color standards and controlled time and temperature. The color is transient, the reagent (glyoxylic acid) is unstable, and the test is apparently subject to interference from other substances in the fluid; e. g., excess of dextrose. The Boltz reaction cannot be said to replace in any way the longer and more elaborate methods for the exact determination of protein in the spinal fluid, but when there is not time or when equipment for such tests is lacking it may well serve as a convenient and practical approximation.

Spinal Drainage in Alcoholic Deliria.—Goldsmith asserts that spinal drainage is an effective means of treatment in acute alcoholic delirium states, attended by few sequelae, and the length of stay in the hospital of patient suffering with these conditions has been materially reduced in 78 per cent of the cases to an average stay of but thirty days. The treatment, however, is most effective when instituted within twenty-four hours following admission to the hospital. No after-treatment is necessary in the great majority of cases. These patients convalesced rapidly under the routine hospital care.

American Journal of Surgery, New York

10: 1-167 (Oct.) 1930

Physicians and Surgeons and Their Mutual Relations. U. Maes, New Orleans.—p. 1.
*Surgery of Sympathetic Nervous System: Fourteen Sympathetic Ganglionectomies. P. G. Flothow, Seattle.—p. 8.
Injection Treatment of Varicose Veins. H. O. McPheeters, Minneapolis.—p. 19.
*Lead Poisoning and Eighteenth Amendment. G. A. Moore, Brockton, *Mass.—p. 32.*
Closed Aseptic and Quick Method of Gastro-Intestinal Anastomosis. A. V. Partipilo, Chicago.—p. 35.
Allergy Following Rectal Administration of Quinine-Alcohol-Ether in Labor. M. P. Rucker, Richmond, Va.—p. 53.
Fractures, Contusions, Lacerations and Relation to Disability. A. B. Illievitz, Montreal.—p. 56.
Diverticulitis of Colon. W. R. Parkes, Evanston, Ill.—p. 63.
Clinical Application of Bladder Tumor Pathology. P. W. Aschner, New York.—p. 67.
Malignant Disease of Urinary Bladder. V. C. Hunt, Rochester, Minn.—p. 69.
Postoperative Eventration. J. F. Baldwin, Columbus, Ohio.—p. 78.
Correction of Pendulous Breasts. H. O. Bames, Los Angeles.—p. 80.
Diagnosis and Treatment of Tuberculosis of Genital Tract. J. D. Barney, J. L. Watson and S. Elliott, Boston.—p. 84.
*Roentgen Significance of Gas Under Diaphragm. E. L. Jenkinson and I. G. Ellis, Chicago.—p. 93.
Treatment of Peptic Ulcer. R. Finkelstein, New York.—p. 97.
*Alcohol Injection of Nerve Roots for Thrombo-Angiitis Obliterans. E. L. Stern, New York.—p. 107.
Present Status of Electrosurgery and Diathermy. A. G. Fleischman, Des Moines, Iowa.—p. 116.
Interpretation of Double Ureters. L. P. Wershub, New York.—p. 122.
*Exteriorization and Utilization of Sac and Redundant Peritoneum in Radical Treatment of Inguinal Hernia. A. L. Soresi, New York.—p. 130.
Carcinomatous Degenerations of Cervical Polyp Without Uterine Involvement. A. Stein, New York.—p. 136.
One-Man Pneumothorax Apparatus. M. S. Lloyd, New York.—p. 140.
Skin Clamp Holder. E. G. C. Williams, Danville, Ill.—p. 142.
Complications Following Use of Gold Spring Pessary. C. Potter, St. Joseph, Mo.—p. 143.
Perforated Typhoid Ulcer Closed by Primary Enterostomy. L. W. Grove, *Atlanta, Ga.—p. 149.*
Carcinoma of Cervix Uteri: Occurrence in Early Life. C. H Lupton, Norfolk, Va.—p. 150.

Surgery of Sympathetic Nervous System.—Fourteen cases of sympathetic ganglionectomy are reported by Flothow. In seven cases dorsal ganglionectomy was done, the removal of the second rib and transverse process being used as the approach. In the other seven cases the lumbar ganglions were removed through a transabdominal approach. Four lumbar ganglionectomies for chronic polyarthritis resulted in relief of pain and marked progressive improvement in joint function. Three ganglionectomies for Buerger's disease with vasospasm of the second dorsal and first lumbar are reported. Two cases of amputation pains and one of brachial plexus avulsion are reported in which dorsal ganglionectomy gave some relief. Two cases of dorsal ganglionectomy for painful conditions of the face are reported. One patient with trifacial neuralgia with recurrence of pain after severing of the sensory root has had complete relief for one year. A case of atypical pain in the face gave inconclusive results. One patient with megacolon and one with spastic colon were relieved by lumbar ganglionectomy.

Lead Poisoning and Eighteenth Amendment.—Moore suggests that a more extensive search for lead as an etiologic factor in many of the so-called scofflaws who are suffering from symptoms of peptic ulcer and enteritis might increase the incidence of lead poisoning.

Roentgen Significance of Gas Under Diaphragm.—The case reported by Jenkinson and Ellis is of importance from a diagnostic standpoint. The value of a definite roentgen finding was questioned and even following a laparotomy was thought to be misleading. At the operation the surgeon found nothing to account for the gas under the diaphragm. There was no history or evidence of an injury to the chest, abdomen or pelvis. There was no chance of the air being secondary to a fractured rib or to a penetrating wound of the abdomen. There had been no paracentesis with the possibility of the diaphragm having been penetrated. As the patient was a male, the possibility of tubal insufflation can be ruled out. There had never been an attempt to produce a pneumoperitoneum. In view, therefore, of the history and physical observations, the possibility of the air having entered the peritoneal cavity from without can be ruled out.

Alcohol Injection of Nerve Roots for Thrombo-Angiitis Obliterans.—Blocking the right twelfth thoracic and the first and second lumbar nerve roots with alcohol definitely increased the circulation of the right lower extremity in three cases of thrombo-angiitis obliterans reported by Stern. This procedure blocks both the sympathetic fibers in the rami communicantes at these levels and the vasomotor fibers in the genitofemoral, femoral and part of the obturator nerves (somatic). These fibers innervate the aorta, common iliac, external iliac, femoral and popliteal arteries, and possibly other terminal arteries in the leg and foot. Blocking of somatic muscular and sensory branches of nerves arising from the twelfth thoracic and the first and second lumbar roots did not produce serious paresis or paralysis of any muscles, or any unbearable disturbance in the skin areas supplied by these nerves. The good results obtained from this procedure may be explained as being due to an increase in the circulation of the lower extremity, caused by the removal of an appreciable vasoconstriction status that exists in this disease in the diseased vessels themselves, in those not diseased, or in both diseased and nondiseased vessels.

Radical Treatment of Inguinal Hernia.—A technic is described by Soresi which exteriorizes the sac and any bulging peritoneum, and utilizes the sac as a reinforcing tissue to a weak region. By this technic, atrophy of the testicle, hematomas, and injury to the intestine, bladder, vas deferens and spermatic artery are completely prevented. Recurrences of indirect hernia become a physical impossibility. Recurrence of direct hernia is rendered more improbable because the blood, lymphatic and nerve supply of the region have not been damaged and the region is reinforced by the presence of the exteriorized sac. Trauma and shock, or any other postoperative complications, are reduced to a minimum, little damage being done to the tissues and a short time being required for the operation. In children and in young adults, the operation has been performed often in less than ten minutes and without even ligating a single blood vessel, when the diathermic scalpel was used. Numerous clinical results, including two cases of sliding hernia, one strangulated hernia and one with ectopic testicle, up to the present time are satisfactory.

Annals of Surgery, Philadelphia

92: 481-799 (Oct.) 1930

Fifty Years of American Surgical Association. F. B. Lund, Boston.—p. 481.
*Experiences with Trendelenburg Operation for Pulmonary Embolism. G Nystrom, Uppsala, Sweden.—p. 498.
*Resection of Anterior Half of Pyloric Sphincter. J. B. Deaver and V. G. Burden, Philadelphia.—p. 533.
Carcinoma of Stomach Without Recurrence Twenty-Four Years After Operation. A. Schwyzer, St. Paul.—p. 540.
*Immediate Mortality and Late Results of Operations for Gastric and Duodenal Ulcers. J. S. Horsley, Richmond, Va.—p. 545.
*Immediate Mortality and Late Results of Operations for Peptic Ulcer. Gatewood, Chicago.—p 554
*Results of Gastro-Enterostomy for Ulcer of Duodenum and Stomach. D C. Balfour, Rochester, Minn.—p. 558
*Results of Operations for Excision of Ulcer of Duodenum. E. S. Judd and M. E Hazeltine, Rochester, Minn.—p. 563
*Ultimate Results and Actual Functional Results After Different Types of Operations for Gastric and Duodenal Ulcers *for Gastric Cancer* and for Hour-Glass Stomach After Interval of Five Years or More. J. C Bloodgood, Baltimore.—p. 574.
*Results in Surgical Therapy for Gastric and Duodenal Ulcer. F. B. St John, New York.—p 597.
*Peptic Ulcer Surgical Aspects Including End-Results. J. A. Hartwell and R K. Felter, New York.—p. 602.

*Immediate Mortality in Operations for Gastric and Duodenal Ulcer and Causes. J. H. Gibbon, Philadelphia.—p. 616.
*Results of Operations for Chronic Gastric and Duodenal Ulceration. J. M. T. Finney and E. M. Hanrahan, Jr., Baltimore.—p. 620.
Philosophic Considerations of Gallbladder. C. H. Mayo, Rochester, Minn.—p. 640.
Acute Cholecystitis. R. H. Miller, Boston.—p. 644.
*External and Internal Biliary Fistula Following Cholecystectomy. F. H. Lahey, Boston.—p. 649.
Benign Papilloma of Common Bile Duct. A. T. Bazin, Montreal.—p. 658.
Reconstruction of Bile Passages: Hepaticoduodenostomy. L. G. Guerry, Columbia, S. C.—p. 663.
Neurofibroma Arising on Pericardial Pleura. W. L. Keller and G. R. Callender, Washington, D. C.—p. 666.
Osteochondromatosis. E. Rixford, San Francisco.—p. 673.
*Cancer of Buccal Mucosa. C. C. Simmons, Boston.—p. 681.
Compensatory Use of Live Tendon Strips for Facial Paralysis. V. P. Blair, St. Louis.—p. 694.
Entero-Anastomosis in Intestinal Obstruction. J. W. Vaughan, Detroit.—p. 704.
Sympathetic Nerves of Distal Part of Colon and Rectum in Treatment of Hirschsprung's Disease and Certain Types of Constipation. F. W. Rankin and J. R. Learmonth, Rochester, Minn.—p. 710.
Splanchnic Anesthesia in Treatment of Paralytic Ileus. V. C. David and M. Loring, Chicago.—p. 721.
*Ileocecal Obstruction Associated with Appendicitis. J. Speese and F. A. Bothe, Philadelphia.—p. 728.
Diverticula of Sigmoid. W. J. Mayo, Rochester, Minn.—p. 739.
End-Results of Inguinal Hernia Operations. C. L. Gibson and R. K. Felter, New York.—p. 744.
Sliding Hernias of Ascending Colon and Cecum. Descending Colon and Sigmoid and of Bladder. A. D. Bevan, Chicago.—p. 754.
Uroselectan Intravenous Urography. E. Beer, New York.—p. 761.
Coccus Infections of Kidney. H. Cabot, Rochester, Minn., and R. M. Nesbit, Ann Arbor, Mich.—p. 766.
Vesicovaginal Fistula. W. E. Lower, Cleveland.—p. 774.
*Progressive, Gangrenous, Painful Ulceration of Abdominal Skin and Subcutaneous Tissues Following Operation. L. Freeman, Denver.—p. 779.
Postoperative Blood Chemistry. E. Andrews and K. Reuterskiold, Chicago.—p. 786.

Trendelenburg Operation for Pulmonary Embolism.—Nystrom states that with Trendelenburg's operation it seems that only in rare cases will it be possible to save a patient otherwise condemned because of pulmonary embolism. It is on the prevention of pulmonary thrombosis that hope has to be placed of being able to defeat at some future time one of the most distressing complications with which, after the victories won by the introduction of antiseptics, surgery has still to wrestle. He reports ten cases. It is of interest that a patient who has recovered from an operation for pulmonary embolism may not suffer any lasting inconvenience from the operation. Two patients who were cured have recently been examined and are in good health. The man works as a farmer and he says he is not as persevering as before his illness and with hard work he feels palpitation of the heart; but he has no shortness of breath from climbing hills and stairways, and he works the whole day. As a result of this thrombosis the legs are swollen in the evenings, but at the time of examination there was no edema. Beneath the weak part of the chest wall along the sternum there is a sharp systolic murmur, but nowhere else. The pulse is 60, the blood pressure 160 systolic. The woman says she is as persevering as before and never is conscious of her heart. The legs are a little swollen at times as a result of the thrombosis, but at the time of examination there was no edema. A sharp systolic murmur was heard under the weak part of the chest wall, but nowhere else. The pulse was 74, the systolic pressure 140. In both cases, roentgen examinations did not show changes that could be ascribed to the embolism.

Resection of Anterior Half of Pyloric Sphincter.—A corrective procedure which removed the pyloric interference with duodenal regurgitation has been applied by Deaver and Burden in clinical cases of peptic ulcer, pylorospasm and hyperchlorhydria. In this procedure the anterior half of the pyloric sphincter is removed. In an experience with eighty-one cases over a period of two and one-half years, the results have been at least as satisfactory as from any operation they have used in similar cases so far as symptomatic relief and postoperative roentgen observations are concerned. They have not yet encountered a recurrence of ulceration and, of course, the development of gastrojejunal ulcer is impossible. The removal of the anterior half of the pyloric sphincter is a much simpler operation than gastro-enterostomy or resection of the stomach, yet the results are equally satisfactory and the postoperative complications and late sequelae are much less hazardous.

Mortality in Operations for Gastric and Duodenal Ulcers.—A review of ten years' experience is presented by Horsley. He says that it seems probable that the vast majority of cases of peptic ulcer can be cured either by medical treatment consisting largely of regulation of diet, or by operation. After any stomach operation medical treatment, particularly regulation of the diet, should be carried out for at least several months. This is just as essential in a stomach that has been temporarily crippled by the operation, until it can recover its tone and function, as it is to use splints after an accurately set fracture until the bone itself has become strong. The kind of operation done should be suited to the type of lesion present. In a few patients, however, there seems to be an inherent tendency toward recurrence of a peptic ulcer even after multiple operations and careful medical treatment. Fortunately, they constitute a small percentage of the total number of patients with peptic ulcer. This group can usually be effectively managed along lines of rest for the stomach, such as feeding by jejunostomy for months or even permanently, as recommended by Balfour.

Mortality in Operations for Peptic Ulcer.—An analysis made by Gatewood of 163 patients treated by gastro-enterostomy between 1915 and 1925 shows a hospital mortality of 1.8 per cent with 82 per cent of the patients well or greatly improved. Of the remaining 16 per cent, 8.5 per cent died subsequently of some stomach condition and 4.8 per cent died of other causes. While the majority of this last group were undoubtedly well as far as stomach symptoms were concerned, they have not been included in the known cures. Considering that this report covers a selected group of patients, gastro-enterostomy seems to be a satisfactory operation in spite of the failures. Gastro-enterostomy for ulcer in the Presbyterian Hospital during the past fifteen years has been followed by a hospital mortality of 2.7 per cent. Acute perforations operated on within the first twelve hours carried a mortality of 5 per cent as compared with a total mortality of 20 per cent. Recurrence of symptoms demanding further surgery occurred in nearly all simple closures and the mortality does not seem to be increased by concomitant gastro-enterostomy. Gastric resection for gastric ulcer and gastro-jejunal ulcer is an operation that has increased in frequency during the past five years. Although the series is small (thirty) there are three known gastro-jejunal ulcers (10 per cent). The preoperative medical management of all cases for at least a short period before operation seems to be indicated from an analysis of the deaths in this series.

Results of Gastro-Enterostomy for Ulcer of Duodenum and Stomach.—Five hundred consecutive cases of duodenal ulcer in which gastro-enterostomy alone was done were studied by Balfour. From the standpoint of relief of symptoms, it was found that after operation 87 per cent of the patients obtained relief which they had been unable to obtain by any other means. In 69 per cent either the relief had been so complete that the patient had paid no attention to diet or to habits of living, or dyspepsia was so slight as to be readily controlled by simple measures. In 18 per cent the results could be classified as fair. In 13 per cent the patients did not obtain permanent relief from operation. The deaths within five years from all causes were twenty-one (4.28 per cent). In no case in the series, or in any other series studied, did perforation of the duodenal ulcer, either acute or subacute, occur after gastro-enterostomy had been done. In other words, satisfactory gastro-enterostomy apparently afforded absolute protection against this serious complication. In none of the cases in this group did obstruction of the pylorus develop following gastro-enterostomy. Forty-five of the 500 patients (9 per cent) had one or more hemorrhages after operation, but only 1 of the 500 died from hemorrhage. The study also confirmed the fact that such hemorrhages often are directly associated with unusual physical and mental strain, overloading the stomach, excessive use of tobacco and alcohol, and gross dietetic indiscretions and severe focal infection. No instance of carcinoma developing subsequent to operation was encountered. The protection afforded by gastro-enterostomy against the formation of a secondary chronic ulcer is approximately 96 per cent. Twenty patients had recurrent ulceration (4.07 per cent of 491 cases), and of these gastrojejunal or jejunal ulcer was listed in sixteen cases, a total percentage of 3.25 occurring in a period of ten years or more after operation. One hundred cases were studied in which gastro-enterostomy alone was done for gastric ulcer. The operative mortality in this series was 3 per cent. Seventy-nine per cent of the patients, five years or more after operation, were relieved. In 50 per cent the relief had been complete; in 29 per cent slight and easily controlled symptoms occasionally occurred, the patient considering the results of operation as good. In 4 per cent the result was classified as fair; in 17 per cent the result was poor. Gastro-enterostomy affords almost complete protection against the complications of perforation and obstruction. The subsequent deaths from all causes in this group during five years after operation were seventeen. The protection against recurrence or reactivation of ulcer afforded by gastro-enterostomy alone for gastric ulcer is approximately 96.9 per cent. It is a significant fact that gastrojejunal ulcer is not a problem in the treatment of gastric ulcer since the complication did not occur in this group. In cases in which the operation of choice, namely, excision and gastro-enterostomy, is possible, gastrojejunal ulceration is almost unknown. The striking fact in the study of this series of 100 cases is that an indirect operation alone for gastric ulcer can be depended on to give a high percentage of good results in cases in which the removal of the lesion, by any method, is difficult, and partial gastrectomy is associated with prohibitive operative risk and an unwarranted sacrifice of the stomach.

Results of Operations for Excision of Ulcer of Duodenum.—This report by Judd and Hazeltine covers 1,363 cases with a mortality of 0.44 per cent. The ultimate results in this group of cases are practically the same as the ultimate results obtained by gastro-enterostomy; 90 per cent of the patients have obtained satisfactory results.

Results After Operations for Gastric and Duodenal Ulcers.—Bloodgood urges the more frequent choice of the first Billroth anastomosis after resection of the stomach, pylorus or duodenum. In resection for cancer, it is unnecessary to give the wide margin of an uninvolved wall. When the second Billroth procedure must be adopted, he urges a long-loop gastro-enterostomy and recommends Balfour's modification of Polya's operation. In duodenal ulcer the Finney pyloroplasty is the operation of choice, if local conditions allow it, with and without the local excision of the ulcer. When Finney pyloroplasty is contraindicated, there must be a choice between short-loop posterior gastro-enterostomy and resection. In large chronic ulcers of the duodenum, especially those adherent to the pancreas, Bloodgood advises resection rather than posterior gastro-enterostomy. Finney's pyloroplasty or any type of gastroduodenostomy with local resection of the ulcer may be carried too far. In such cases either a posterior gastro-enterostomy, resection and the first Billroth procedure should be the operation of choice. It is rarely necessary when operating for a perforated duodenal ulcer to do more than to close the perforation and drain. A diagnosis of inoperable carcinoma should not be based on palpation and roentgen examination alone. The patient should be given the benefit of exploration unless there are skin metastases or fluid is present in the peritoneal cavity. And even then, if there is obstruction, operation is indicated.

Surgical Therapy for Gastric and Duodenal Ulcer.—Four hundred and thirty-five cases of ulcer, treated surgically, have been reviewed by St. John. Gastro-enterostomy was performed in 119 cases and partial gastrectomy in 76 cases. He has established the presence of marginal ulcer in 6.9 per cent of the gastro-enterostomies and in 3.6 per cent of the resections performed in his own clinic. The mortality of gastro-enterostomy was 15.1 per cent; mortality due to technical error, 5.9 per cent; the mortality of partial gastrectomy was 19.6 per cent; mortality due to technical error, 15.8 per cent.

Peptic Ulcer Surgical Aspects Including End-Results.—The efficiency and reliability of roentgen diagnosis of peptic ulcer has been confirmed in the series of cases analyzed by Hartwell and Felter in which the preoperative and operative observations have been compared. Gastro-enterostomy has been shown to be a safe procedure with a mortality of 2.1 per cent in the hands of many different surgeons. It is likewise excellent from a therapeutic standpoint with 92 per cent of satisfactory results. The location of the gastrojejunostomy opening does not seem to influence greatly the clinical and mechanical results of operation. Polya resection seems to be the best procedure in gastric ulcer and has given uniformly good results in this small series, but mortality is high. These cases demonstrate the almost uniformly good results of operation for peptic ulcer in the hands of a comparatively large group of surgeons.

Operations for Gastric and Duodenal Ulcer and Causes.—In considering the mortality and the postoperative complications in his series of 267 cases, Gibbon says it is apparent that some form of disease in the lung is most conspicuous. In the clean cases, wound infections and peritonitis have not been high and there was but one fatal hemorrhage—a case of gastrectomy.

Results of Operations for Chronic Gastric and Duodenal Ulceration.—Finney and Hanrahan analyze 737 cases of ulcer of the stomach and duodenum in which operation was performed. One hundred and ten operations were performed after perforation, with an operative mortality of 23.6 per cent. The mortality in all operations for chronic ulcer was 8.6 per cent. Of the chronic ulcers, 268 were gastric and 339 duodenal. There were twenty operations for postoperative marginal ulcer in the chronic group. The operations included such miscellaneous procedures as excisions, with knife or cautery, wedge and sleeve resections, either with or without a gastro-enterostomy, simple gastro-enterostomy, pyloroplasty, with or without excision, and partial gastrectomy. The miscellaneous procedures were applied to those cases in which pyloroplasty or gastro-enterostomy were for some reason contraindicated. Pyloroplasty was the operation of choice for ulcers of the duodenum, pylorus or antrum, when the ulcer could be included in the pyloroplastic incision and when the duodenum could be satisfactorily mobilized. Partial gastrectomy was occasionally used for duodenal ulcer and more commonly for ulcers of the body of the stomach, when conditions warranted the more radical procedure. Gastro-enterostomy was used for ulcers of the lesser curvature and fundus when partial gastrectomy was not practicable, and for ulcers of the pylorus and duodenum when difficult mobilization or the presence of excessive scar tissue precluded pyloroplasty. The operative mortality for this series approximated that of most hospital series covering similar periods and performed under similar circumstances. The figures by operations are as follows: miscellaneous operations of expediency, 26.9 per cent; gastro-enterostomy, 8.1 per cent; pyloroplasty, 5.2 per cent, and partial gastrectomy, 12.9 per cent. The operative mortality in eighty-four cases of gastro-enterostomy in the Johns Hopkins Hospital between 1925 and 1930 was 2.4 per cent. The operative mortality following pyloroplasty for duodenal ulcer was 2.7 per cent. These operations were done by men of varying experience, from assistants in training to older experienced surgeons. The end-results of these operations also correspond closely to those of most similar series, 85.6 per cent benefited by the operation. Duodenal ulcer yielded better results than gastric, even after allowance is made for those patients with gastric ulcer known to have died later of carcinoma.

Biliary Fistulas Following Cholecystectomy.—The surgical demonstration of inadequate spontaneous internal biliary fistulas between the hepatic duct and the duodenum or stomach above strictures of the hepatic duct after cholecystectomy is reported by Lahey. The spontaneous closure and entrance of bile into the intestinal tract from complete external biliary fistulas is reported, as is the satisfactory progress of these cases over a period of three and twelve months, respectively. The possibility of destruction of the preliminary complete external biliary fistulas by the occurrence of inadequate spontaneous internal biliary fistulas, together with a report of such an occurrence twice in the same individual, is reported and a plan to prevent it is proposed.

Cancer of Buccal Mucosa.—The results of treatment of carcinoma of the mouth by surgery and irradiation are compared by Simmons. In primary cases without clinical evidence of metastases, surgical treatment offers 40 per cent chance of a five-year cure as against 8.5 per cent by irradiation. In primary cases with clinical evidence of metastases, irradiation offers no chance of permanent cure, and operative treatment 30 per cent. These figures are hardly fair, however, as only the most favorable cases were submitted to surgical treatment. On the other hand, no cases were cured by irradiation. Postoperative prophylactic roentgen treatment had no effect in preventing recurrence. Of the primary cases fatal because of recurrence, life was prolonged by treatment, but life is longer following surgical treatment than irradiation. In the recurrent cases in which death occurs because of disease and in inoperable cases, life is distinctly prolonged by irradiation.

Ileocecal Obstruction Associated with Appendicitis.—Speese and Bothe assert that a certain proportion of the poor remote results in operations for chronic appendicitis may be attributed to failure to note ileocecal obstruction and to relieve it properly. Relief obtained by freeing adhesions followed by the use of omental transplants has afforded sufficiently favorable results in overcoming the obstruction to justify the employment of this proceedure.

Ulceration of Abdominal Skin and Subcutaneous Tissues Following Operation.—A rare wound-infection is described by Freeman, occurring principally, but not always, in connection with abdominal incisions. It begins usually in a stitch-hole a number of days following an operation and spreads slowly and indefinitely, causing marked induration of the skin, which is at first red, then livid and finally gangrenous. The process is accompanied by intense pain and tenderness and moderate fever, and may last for weeks or months, causing great physical and nervous exhaustion and possibly resulting in death. The cause is obscure, although an ameba has been suggested by Cole and Heideman, and the symbiotic action of a streptococcus and a staphylococcus by Brewer and Meleny. It usually has been found in connection with suppurating wounds, but in Freeman's case it began in a stitch-hole, following primary union of a gallbladder incision without drainage. All ordinary methods of treatment usually have failed, the only effective remedy being the heroic use of the actual cautery.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

11: 519-574 (Oct.) 1930

Uterine Cervical Cancer: Radium Versus Surgery. H. Swanberg, Quincy, Ill.—p. 519.
Factors Determining Ultraviolet Dosage and Courses of Treatment. G. J. Warnshuis, Cedarburg, Wis.—p. 532.
Combined Use of Radium and Surgery in Treatment of Carcinoma of Face. A. Strauss, Cleveland.—p. 536.
Behavior of Living Tissue in Vitro and Effect of Radium on Cancer Cells, R. G. Canti (London). L. H. Jorstad, St. Louis.—p. 538.
Physical Nature of Death. G. W. Crile, M. Telkes and A. F. Rowland. —p. 541.

Canadian Public Health Journal, Toronto

21: 475-528 (Oct.) 1930

Tuberculosis in Childhood as Problem in Preventive Medicine. F. M. McPhedran, Philadelphia.—p. 475.
Registration of Resident and Nonresident Death. A. G. Fleming, Montreal.—p. 491.
Iodine Prophylaxis and Endemic Goiter. A. T. Cameron, Winnipeg.—p. 495.
Nutrition and Pregnancy. K. C. McIlwraith, Toronto.—p. 513.

Florida Medical Association Journal, Jacksonville

17: 161-198 (Oct.) 1930

Free Tendon Grafts in Fingers: Case. K. A. Morris, Jacksonville.—p. 161.
Rational Roentgen-Ray and Radium Therapy. W. A. Weed, Lakeland. —p. 164.
Proteins in Human Pathology. T. M. Rivers, Kissimmee.—p. 167.
Radiotherapy in Treatment of Uterine Fibromyomas. J. W. Landham, Atlanta, Ga.—p. 171.
Venomous Snakes. P. T. Butler, Orlando.—p. 174.
Gunshot Wound of Tibia: Case. Z. Brantley, Grandin.—p. 179.

Georgia Medical Association Journal, Atlanta

19: 409-456 (Oct.) 1930

Mastoidectomy: Blood Clot Closure. T. E. Oertel, Augusta.—p. 409.
Acute Osteomyelitis: Orr's Treatment. C. W. Crane, Augusta.—p. 411.
Forceps Operations. A. J. Kilpatrick, Augusta.—p. 414.
Roentgenologic Diagnosis. L. P. Holmes, Augusta.—p. 416.
Dermatologic Clinic. G. T. Bernard, Augusta.—p. 419.
Blood Chemistry and Internal Medicine: Aid in Diagnosis, Prognosis and Treatment. T. L. Byrd, Emory University.—p. 420.
Prevention of Gonorrhea. E. G. Ballenger, O. F. Elder and H. F. McDonald, Atlanta.—p. 425.
Electric Coagulation of Lateral Tonsils. R. R. Daly, Atlanta.—p. 427.
Abdominal Pain. P. O. Chaudron, Cedartown.—p. 429.
Fibromyoma of Uterus Complicating Pregnancy and Labor: Case. O. R. Thompson, Macon.—p. 432.
Importance of Using Fresh Fruits and Vegetables in Routine Diet of Young Children. M. M. McCord, Rome.—p. 434.

Journal of Bone and Joint Surgery, Boston

12: 733-998 (Oct.) 1930

Conservative Treatment in Surgical Tuberculosis of Lower Extremity. A. Rollier, Leysin, Switzerland.—p. 733.
Treatment of Tuberculosis of Joints of Lower Extremities by Operative Fusion. R. A. Hibbs, New York.—p. 749.
*Nonoperative Treatment of Tuberculous Joints of Lower Extremities. H. Lo Grasso, Perrysburg, N. Y.—p. 755.
*Repair of Bone in Presence of Aseptic Necrosis Resulting from Fractures, Transplantations and Vascular Obstruction. D. B. Phemister, Chicago.—p. 769.
*Calf-Milt Diet in Treatment of Suppurative Tuberculosis of Joints. O. Fliegel, Vienna, Austria.—p. 788.
Roentgen Diagnosis of Bone Tumors. M. M. Pomeranz, New York. —p. 795.
Fractures of Femoral Neck. A. W. Reggio, Boston.—p. 819.
*Histologic Study of Early Phases of Bone Repair. A. W. Ham, Toronto. —p. 827.
*Operation for Cure of Paralytic Genu Recurvatum. L. Mayer, New York.—p. 845.
*End-Results of Synovectomy of Knee. S. B. Boon-Itt, Bangkok, Siam. —p. 853.
*Effect of Lumbar Sympathectomy on Growth of Legs Shortened from Anterior Poliomyelitis. R. I. Harris, Toronto.—p. 859.
Synovial Cells in Joint Effusions. D. H. Kling, New York.—p. 867.
*Surgical Treatment of Congenital Anterior Dislocation of Knee. S. Kofman, Odessa, U. S. S. R.—p. 871.
*So-Called Renal Rickets: Case. H. A. Swart, Rochester, Minn.—p. 876.
Anatomy and Pathologic Changes of Sacro-Iliac Joints. D. Sashin, New York.—p. 891.
Fractures of Humerus Treated by Means of Hoke Plaster Traction Apparatus. L. Thornton, Atlanta, Ga.—p. 911.
Mechanical Reduction of Recent Fractures Under Control of Double Screen (Anteroposterior and Lateral Planes). G. Pascalis, Paris, France.—p. 918.
Fracture of Supracondyloid Process of Humerus: Case. H. J. Lund, Oakland, Calif.—p. 925.
Ewing's Tumor (Endothelial Myeloma): Case. C. E. Sevier, Denver. —p. 929.
*Unusual Congenital Deformity of Hand Combined with Supernumerary Toes: Case. M. B. Cooperman, Philadelphia.—p. 956.
Bilateral (Ninety Degrees) Rotatory Dislocation of Atlas on Axis. P. W. Greeley, Winnetka, Ill.—p. 958.

Nonoperative Treatment of Tuberculous Joints.—Lo Grasso postulates that tuberculosis is a systemic, not a local, disease, irrespective of the particular local manifestations that may be present. A patient with a tuberculous joint should be treated for the systemic infection and the joint treated as a complication, not as the primary infection. Operative procedure is likely to disseminate the disease, especially if undertaken during the acute stage. If surgery must be resorted to, it should be done only after a preliminary course of conservative treatment so as to bring the resistance of the patient to a maximum. Experience has shown that such conservative treatment usually results in healing with useful motion, and retention of that motion without recurrence of the disease.

Repair of Bone in Presence of Aseptic Necrosis.—Phemister states that aseptic necrotic bone in continuity with living bone is gradually invaded and more or less completely replaced by new bone through the process of creeping substitution, unless it is too inaccessible and is broken down by traumatism. In these diseases there is a marked fibroblastic and fixed tissue phagocytic reaction and, in rare cases, an infiltrative reaction which result in absorption of necrotic bone without bony replacement by creeping substitution except in occasional instances. New bone formed from surviving osteogenic elements replaces more or less completely the absorptive tissues in the course of time.

Calf-Milt Diet in Treatment of Suppurative Tuberculosis of Joints.—The spleen has a markedly beneficial influence on tuberculosis by producing antibodies and increasing the resistance of the diseased tissue. Fliegel has found that the calf appears to exert a decided influence on human tuberculosis. The active substance of the spleen is not as yet known. Therefore, the calf spleen is given either raw or rare, in order not to destroy the active substance. The course consists of daily doses of from 50 to 100 Gm. for four weeks, followed by intermission of two weeks. It may be necessary to repeat this administration several times. The improvement in a great number of cases is striking, especially the improvement of the general condition. The milt diet is harmless and should be tried in all severe cases.

Early Phases of Bone Repair.—Ham made a histologic study of a series of experimental fractures produced in the rabbit in his endeavor to determine the origin, nature, and growth of the cells that repair a fracture, and a study of some of the purely local factors that influence the process. The adult bone cell is distinguished from the osteogenic cell that is found lining the bone in the periosteum, the haversian canals and the endosteum. The adult bone cell was found to take no active part in the process of regeneration of bone following a fracture. The osteogenic cells proliferate and differentiate into bone and cartilage. Concerning the controversy regarding the existence of a specific osteogenic cell, the subject of metaplastic bone formation is reviewed. The usual method of bone repair is through the agency of these specific osteogenic cells and not by the metaplasia of fibroblasts. Two factors, the presence of a local deposit of calcium salt and a good blood supply, are of great importance in effecting the differentiation of the osteogenic cell into bone. Cartilage results from the growth of osteogenic cells in the absence of these two factors. In the repair of fractures, bone and cartilage formation result from the differentiation of osteogenic cells in different environments.

Operation for Cure of Paralytic Genu Recurvatum.—The operation described by Mayer is intended to create an adequate bone block so attached to the tibia as to correspond to the olecranon process of the ulna—in other words, to make an elbow joint out of the knee. Severe grades of genu recurvatum can be successfully treated by inserting a bone graft into the upper end of the tibia. The graft, fusing with the tibia and the patella, forms a bone block that effectually prevents hyperextension. Great care must be taken not to maintain the overcorrected position too long, since otherwise a flexion contracture is likely to ensue.

End-Results of Synovectomy of Knee.—Boon-Itt avers that in well selected cases of chronic arthritis of the polyarticular type about 60 per cent of the cases are benefited by synovectomy, while in the monarticular type about 75 per cent of the cases are improved by the operation. Traumatic arthritis has a high percentage of good results (95 per cent) after synovectomy. Tuberculous arthritis of the knee does not obtain relief from synovectomy.

Effect of Lumbar Sympathectomy on Growth of Legs Shortened from Anterior Poliomyelitis.—Harris cites cases to demonstrate that lumbar sympathectomy performed on patients suffering from paralysis of the leg due to anterior poliomyelitis produces the same vascular changes that have been observed in normal patients; namely, increased warmth and dryness of the foot due to vasodilatation and to paralysis of the sweat glands. The calorimetric readings indicate that sympathectomy causes considerable increase in the blood supply to the foot. The vascular changes are of prolonged duration and perhaps are permanent. It is possible to accelerate the rate of growth of a child's leg by the operation of lumbar sympathectomy. The increase in comfort that results from transforming the cold, blue, damp foot of anterior poliomyelitis to one that is warm and dry is much appreciated by the patient.

Surgical Treatment of Congenital Anterior Dislocation of Knee.—Kofman describes the operation performed by him in these cases as applied in one case as follows: The tibial tubercle was chiseled off, and the patella and its tendon were turned proximally. The iliotibial band was divided from 3 to 4 cm. above the joint line and freed from the adjacent muscles. By powerful traction the articular surface of the tibia was brought down to the normal level but, because of distortion of the joint surfaces, could not be maintained in position even after division of the tense cruciate ligaments. To improve the contact, several thin transverse slices were removed from under the cartilage of the tibial head, until the joint surfaces could be well approximated. The patellar ligament was then too short, so the tibial tubercle was freed from its periosteum and the latter sewed to the tibia 3 cm. proximal to its former position. The wound was closed and a cast applied with the knee in extension.

So-Called Renal Rickets.—A case is described by Swart in which marked bony deformity, of the type of osteomalacia, was associated with definite renal insufficiency in a youth, aged 18 years.

Congenital Deformity of Hand Combined with Supernumerary Toes.—The malformation of the hand in Cooperman's case was caused by fusion of a supernumerary metacarpal to the lateral ulnar margin of the fifth metacarpal. This deformity was unsightly and interfered with the normal function of the hand. The patient also presented a supernumerary sixth toe on each foot. Favorable results followed operation.

Journal of Infectious Diseases, Chicago

47: *293-366* (Oct.) 1930

Disinfection: I. Development of Knowledge of Disinfection. G. Knaysi, Ithaca, N. Y.—p. 293.
Id.: II. Manner of Death of Certain Bacteria and Yeasts When Subjected to Mild Chemical and Physical Agents. G. Knaysi and M. Gordon, Ithaca, N. Y.—p. 303.
Id.: III. Taking Up of Iodine by Yeast Cells. G. Knaysi and M. Gordon, Ithaca, N. Y.—p. 318.
Id.: IV. Do Bacteria Die Logarithmically? G. Knaysi, Ithaca, N. Y.—p. 322.
Id.: V. Properties of Frequency Curves and Use in Studies of Disinfection. G. Knaysi, Ithaca, N. Y.—p. 328.
Epidemic Disease of Domestic Fowl Caused by Hitherto Undescribed Organism of Salmonella Pullorum Type. W. N. Plastridge and L. F. Rettger, Storrs, Conn.—p. 334.
Pathogenicity of Pleomorphic Micro-Organism Isolated from Avian Laryngotracheitis. R. Graham, F. Thorp, Jr., and W. A. James, Urbana, Ill.—p. 340.
Experiments with Certain Reactive Factors of Ascaris. H. R. Fishback, Chicago.—p. 345.
Further Studies on Precipitation Test for Syphilis. E. Weiss, Chicago.—p. 355.
Use of Acid Fuchsin in Russell's Triple Sugar Medium. G. D. Cummings, Lansing, Mich.—p. 359.

Kentucky Medical Journal, Bowling Green

28: *471-516* (Oct.) 1930

Acute Retropharyngeal Abscess in Infants and Young Children. G. C. Hall, Louisville.—p. 474.
Upper Respiratory Tract as Guide to Nutritional Disasters: Jarvis Syndrome. J. A. Stucky, Lexington.—p. 477.
Use of Catarrhal Vaccine. W. B. Atkinson, Campbellsville.—p. 480.
History and Diagnosis of Trachoma. C. T. Wolfe, Louisville.—p. 480.
Nasal Septal Deformities and Correction. D. L. Salmon, Madisonville.—p. 485.
Questionnaire on Some of Problems Concerning Tonsillectomy. H. D. Abell, Paducah.—p. 489.
Tuberculosis of Larynx: Treatment with Electrocautery. W. R. Pryor, Louisville.—p. 494.
Diagnosis and Treatment of Abscess of Brain Complicating Ear, Nose and Throat Disease. R. G. Spurling, Louisville.—p. 498.
Hemorrhage from Upper Respiratory Tract. G. B. Brown, Jr., Lexington.—p. 503.
Psychoneuroses. C. Pope, Louisville.—p. 506.
Pruritus Ani, Pathology and Treatment. B. Asman, Louisville.—p. 510.
Rectal Diseases and Abnormalities in Children. J. W. Bruce, Louisville.—p. 512.
Rectum in Obstetrics. E. Speidel, Louisville.—p. 513.

Laryngoscope, St. Louis

40: *707-786* (Oct.) 1930

Granuloma Venereum: Case of Laryngeal Involvement. R. Harris, Jackson, Miss.—p. 707.
Incidence of Vincent's Angina: Study of Fifty Unselected Cases. B. N. Pittenger, Roanoke, Va.—p. 738.
Analysis of Cases of Laryngeal Carcinoma Seen Since October, 1929. J. E. MacKenty, New York.—p. 740.
Sporothrix Infection Involving Bones of Face. F. T. Hill, Waterville, Me.—p. 742.
Nonsuppurative Diseases of Nasal Sinuses: Relationship to Specific Protein Sensitivity. S. L. Ruskin, New York.—p. 751.
Headaches of Nasal Origin. L. J. Hombach, Council Bluffs, Iowa.—p. 753.
Treatment of Lateral Sinus Thrombosis with Dick's Antiscarlatinal Serum. M. S. Ersner, Philadelphia.—p. 758.

Minnesota Medicine, St. Paul

13: *679-774* (Oct.) 1930

Use of Several New Derivatives of Barbituric Acid. J. S. Lundy and C F. Dixon, Rochester.—p. 679.
Spinal Anesthesia: Conclusions Based on Study of 1,283 Cases. A. Jackson, Madison, Wis.—p. 682.
Eye, Ear, Nose and Throat Anesthesia. L. W. Morsman and A. Sinamark, Hibbing.—p. 686.
Anesthesia Problem as Related to Local Anesthesia. R. E. Farr, Minneapolis.—p. 688
Local Anesthesia. S. R. Maxeiner, Minneapolis.—p. 691.
Pulmonary Complications of General Anesthesia. R. T. Knight, Minneapolis.—p. 694.
Clinical Features of Obstructive Jaundice. A. M. Snell and F. M. Jordan, Rochester.—p. 699.
Synopsis of Treatment of Chronic Arthritis. G. A. Williamson, St. Paul.—p. 708
Undulant Fever. E. C. Bayley, Lake City.—p. 713.
Actinomycosis of Mediastinum. R. C. Logefeil, Minneapolis.—p. 716.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

5: 295-370 (Oct.) 1930

*Second Attacks of Acute Poliomyelitis and Minimal Duration of Immunity. G. F. Still.—p. 295.
Anemia and Liver Therapy in Infancy and Childhood. A. C. Hampson and E. C. Warner.—p. 299.
*Spontaneous Nystagmus in Congenital Syphilis. N. Asherson.—p. 331.
*Tonsils and Nasopharyngeal Epidemics. W. H. Bradley.—p. 335.
*Meningeal Hemorrhage in New-Born. G. B. Fleming and E. D. Morton.—p. 361.
Nomogram for Use in Infant Feeding. G. H. Bell and A. C. Paterson.—p. 369.

Second Attacks of Acute Poliomyelitis.—Still found only eight recorded cases in which there seemed to be a clear history of a second attack of acute poliomyelitis. He adds one case.

Spontaneous Nystagmus in Congenital Syphilis.—Asherson concludes from his study of eight cases that nystagmus, as tested for in the usual manner, is a not uncommon concomitant of hereditary syphilis, among treated cases in infants and children, although a true Hennebert's phenomenon was not demonstrated in any of these cases.

Tonsils and Nasopharyngeal Epidemics.—Bradley has made an attempt to assess the value of the tonsil-adenoid operation in the prevention of epidemic nasopharyngeal infections. The operation was found to be of no appreciable value, but some evidence is produced to show that it is followed by compensatory hypertrophy of other lymphoid tissue in the presence of acute disease of the upper air passages. The conditions found suggest that, until the loss of lymphoid tissue is made good, patients who have been operated on are more susceptible to the common catarrhs and more frequently attacked by complications. Chronic tonsillitis is a complication of acute nasopharyngitis. Autogenous reinfection from septic tonsils is not common. It is discussed and the necessity for operation in these circumstances emphasized. A distinctive type of epidemic sore throat is described. A tentative statistical proof that coryza and febricula are "formes frustes" of the stationary fevers of a community is presented.

Meningeal Hemorrhage in New-Born.—One hundred and three cases of intracranial hemorrhage occurring at birth are discussed by Fleming and Morton. The immediate mortality was 48 per cent. The mortality in the premature infants was 75 per cent. Labor was abnormal in half the cases. Tentorial tears were the most common postmortem finding. In thirty-three patients seen when over a year old, five were found to have mental or physical defects. Many of the infants showing severe injury to the head at birth made perfect recoveries and showed no sequelae. A xanthochromatic cerebrospinal fluid found by lumbar puncture is the most certain proof of meningeal hemorrhage in the new-born.

British Medical Journal, London

2: 627-670 (Oct. 18) 1930

Sympathetic Nervous System. W. J. Mayo.—p. 627.
*Clinical Results Following Operation of Sympathetic Ramisection. N. D. Royle.—p. 628.
General Outline of Problem of Training Health Workers. J. G. Fitzgerald.—p. 631.
Undergraduate Medical Training in Public Health. A. G. Fleming.—p. 633.
Special or Postgraduate Public Health Training. D. T. Fraser.—p. 634.
Training of Sanitary Inspector. J. R. Roberts.—p. 636.
Training of Health Visitor. F. C. Middleton.—p. 638.
Ulcerative Colitis: Treatment by Ionization. J. Burnford.—p. 640.
Thenar and Hypothenar Types of Neural Atrophy of Hand. J. R. Hunt.—p. 642.
Injection of Whole Blood for Furunculosis. D. W. Bruce.—p. 642.
Effect of Activated Fluorescein on Growing Beans. S. B. Wigoder.—p 643.

Results Following Sympathetic Ramisection.—Royle has performed the operation of sympathetic ramisection approximately *600 times with 3 deaths. Two of the deaths were from* embolus shortly after the operation, and one was from pneumonia in the first week following operation. Thus the operative death rate is 0.5 per cent. Approximately 300 patients underwent operation, and 2 operations were performed on each patient. In some instances all four limbs were deprived of their sympathetic nerve supply. In the case of the upper limb, it is interesting to note, a sympathetic trunk resection performed bilaterally in the upper thoracic region has not apparently a detrimental effect on the cardiac mechanism. Many patients were able to play vigorous games after the operation without discomfort. To ascertain the effect of operative treatment in spastic paralysis and allied conditions, he sent a questionnaire to each of his patients and received 126 replies. His records show that the remainder of the patients who did not reply had similar if not better results. Congenital spastic paraplegia: excellent, 21.62 per cent; good, 54.05 per cent; poor, 13.51 per cent, and no result at all, 10.8 per cent. Congenital spastic hemiplegia: excellent, 31.42 per cent; good, 40 per cent; poor, 25.71 per cent, and no result at all, 2.85 per cent. Congenital spastic chorea: excellent, 30 per cent; good, 40 per cent; poor, 30 per cent. Acquired spastic hemiplegia: excellent, 21.5 per cent; good, 36.8 per cent; poor, 36.8 per cent, and no result at all, 5.2 per cent. Acquired spastic paraplegia: excellent, 50 per cent; good, 50 per cent. Parkinsonian rigidity: excellent, 4.5 per cent; good, 22.7 per cent; poor, 40.76 per cent, and no result at all, 31.7 per cent. Chronic constipation and megalocolon in adults: excellent, 50 and 66 per cent; good, 50 and 33 per cent. Raynaud's disease: excellent, 71 per cent; good, 28 per cent. Buerger's disease: excellent, 66 per cent; poor, 33 per cent.

Lancet, London

2: 835-888 (Oct. 18) 1930

*Transmission of Yellow Fever. E. Hindle.—p. 835.
*Abscesses of Lung: Treatment and Diagnosis. A. J. S. Pinchin and H. V. Morlock.—p. 842.
Acute Silicosis: Two Cases. G. MacDonald, A. P. Piggot and F. W. Gilder.—p. 846.
Pathologic Fracture Due to Malignant Metastasis: Case. F. Hernaman-Johnson.—p. 848.
Continuous Eversion Stitch. A. Edmunds.—p. 849.
*Unique Surgical Record. R. G. Clements.—p. 850.

Transmission of Yellow Fever.—Hindle's studies showed that the incubation period of the virus in the mosquito may be as short as nine days at 28 C., or indefinitely prolonged at low temperatures. *Aedes aegypti* is capable of becoming infected if kept at a temperature not exceeding 18 C. An infected mosquito retains the infection for at least six weeks if kept at temperatures from 10 to 15 C. Mosquitoes that have ingested virus, if kept at from 10 to 15 C., fail to become infective, but if the temperature is subsequently raised to 28 C. they become infective. In one experiment, out of eleven mosquitoes that fed once on an infected monkey and were kept at 28 C. five (or six) failed to become infective, while five (or six) became infective. In some individuals the virus disappears from the body; in others the virus persists in the body but the bite does not become infective. A fatal infection was produced by the bite of one infected mosquito 118 days after it had become infected, and there seems no doubt that, once infected, a mosquito generally remains infective for the duration of its life. The inoculation of eggs laid by infected parents, and also larvae, pupae, and adults developed from such eggs, gave uniformly negative results. Males kept with infected females were found to become contaminated by the infected feces of the latter. Such contamination was merely on the surface of the males and was removable by washing. An infected mosquito remains infective after having fed on immune blood. In other words, the immune bodies have no action on the virus once it has become established in the mosquito. Mosquitoes that ingest immune bodies at the same time as virus fail to become infective. The prevention of infection seems to depend entirely on the strength of the immune bodies in the blood and is independent of the ingested dose of virus. As a result, the blood of a yellow fever patient ceases to be infective to mosquitoes long before the virus disappears from the blood. The blood of human yellow fever patients is highly infectious in the early stages and capable of spreading the disease by percutaneous infection, since the virus is able to pass through the intact skin.

Treatment and Diagnosis of Abscesses of Lung.—Pinchin and Morlock lay stress on the importance of a careful history, physical examination and pathologic investigation in the diagnosis of lung abscess. Radiology is of the most use, not in diagnosis but in location, in classification and in following the result of treatment. An acute lung abscess should, for a period of from six to ten weeks, be medically treated with postural drainage, during which time emetine, neoarsphenamine or other drugs may be employed. If, after this period, the condition is not clearing, surgery must be resorted to. If the case when first seen is judged from the history to be of longer standing than from six to ten weeks, it should be considered as chronic, and surgical treatment proceeded with. Artificial pneumothorax can be regarded as safe only in the deep-seated encapsulated abscess; its use in other cases must be carefully considered in regard to the comparative risks. The operation of choice is direct drainage performed in two stages under local anesthesia.

Unique Surgical Record.—Clements relates the case of a woman, aged 43 years, whom he saw in June, 1922. She gave a history of stomach trouble with vomiting of bile and always accompanied by severe frontal headaches; during the previous four months she had uterine hemorrhage. She had a cholecystotomy performed in 1916, when a large single stone was removed and the gallbladder drained. She felt much better after the operation until 1918, when she had a return of gastric pain. This was diagnosed as a duodenal ulcer for which a posterior gastro-enterostomy was performed. No benefit resulted from this operation. In 1922 Clements found her markedly tender over the gallbladder and pyloric region, and on vaginal examination she was found to have a typical malignant cervix. Clements performed a hysterectomy (Wertheim). She unfortunately developed a vesicovaginal fistula, which was repaired in August, 1922. In April, 1923, Clements performed an appendicectomy for an acute attack. In January, 1924, she showed signs of bladder trouble, suffering from frequency of micturition, accompanied by severe pain; this was due to calculi, and she was operated on in January and November of that year. For two years she was free from any bladder symptoms, although the gastric symptoms still persisted. In January, 1927, her bladder symptoms returned in a more aggravated form, and it was found that she had a small sac connected with the base of the bladder. She was operated on for this in June, 1927; since that date she has shown no further bladder trouble. During all these years she was never free from abdominal pain, vomiting, headaches, and a feeling of fulness in the upper part of the abdomen. Clements saw her again in June, 1930, and found her in a typical attack of biliary colic. He performed a cholecystectomy, removing the gallbladder with twenty stones, and undid the gastro-enterostomy. She made an uneventful recovery. Today she is perfectly well and for the first time in twenty-eight years is free from any symptoms.

2: 889-944 (Oct. 25) 1930

Birth of Chemical Biology. J. B. Leathes.—p. 889.
*Action of Serum of Normal Individuals on Virus of Poliomyelitis. R. W. Fairbrother and W. G. S. Brown.—p. 895.
*Lymphangioma of Abdomen. L. G. Hill.—p. 897.
*Achlorhydria and Anemia in Advancing Years. D. T. Davies and T. G. I. James.—p. 899.
Disseminated Sclerosis. A. C. Ransome and H. Smith.—p. 901.
*Treatment of Simple Ganglion by Injections. P. McEvedy.—p. 902
Paraplegia in Hodgkin's Disease: Case. F. J. Poynton and K. E. Harris.—p. 903.

Action of Serum of Normal Individuals on Virus of Poliomyelitis.—Some time after the attack had occurred in the school (about six months), Fairbrother and Brown examined samples of serum from various pupils—convalescent and abortive cases, close and remote contacts. They found that immunity to the poliomyelitis virus, as indicated by the presence of antiviral bodies in the serum, is frequently present in normal people who have been in contact with definite cases of the disease without developing it. The results recorded here support Aycock's view that the observed immunity of adults to poliomyelitis is most probably due to "subclinical" infections.

Lymphangioma of Abdomen.—The case reported by Hill provides evidence that this condition results from a congenital malformation of the lymphatics. All stages are present, from completely formed lymphatics and cysts containing plain muscle-fibers in their walls to actively growing endothelial rods opening out later into channels and nodes consisting of basic reticular structure which are possibly incompletely formed lymph glands. Ducts running from the neoplasm toward the celiac region may be an attempt on the part of the tumor to coordinate itself with the normal lymphatic system.

Achlorhydria and Anemia in Advancing Years.—A hundred persons over 60 years of age and in normal health were selected by Davies and James and their response to the ordinary fractional gastric analysis recorded. None of the patients had suffered from digestive ill health. Arterial sclerosis was found in all to a varying degree, and the systolic blood pressure ranged between 120 and 250 mm. of mercury, with no apparent relation to the gastric secretion. The blood was examined in all cases showing achlorhydria, and the results were compared as a series with those of the group showing an abundant secretion of free hydrochloric acid. The condition of the tongue was also noted, whether rough and papillated, or smooth and glazed. Achlorhydria was present in 32 per cent; low secretion of hydrochloric acid in 12 per cent; normal secretion of acid in 43 per cent, and high secretion of acid in 13 per cent. A slight degree of anemia was found more frequently in cases showing a true achlorhydria than in those showing a normal acid secretion. Anemia was more common in cases showing a diminished pepsin secretion than in those showing a good secretion of pepsin. Atrophic changes in the mucous membrane of the tongue were more frequently associated with achlorhydria than with a normal secretion.

Treatment of Simple Ganglion by Injections.—McEvedy has treated many ganglions by injections of sodium morrhuate, and the results have been extremely satisfactory. The skin over the ganglion is carefully sterilized. A small quantity of local anesthetic is injected into the skin at the side of the ganglion with a fine needle. A needle of moderate bore is inserted at this point, and the contents of the ganglion are aspirated. With the needle still in the ganglion, 5 per cent sodium morrhuate is injected. The quantity will vary with the size of the ganglion, from 0.5 to 2 cc. After the injection the ganglion swells and may reach its former size and tenseness. There is mild pain for a day or two. If the quantity of sodium morrhuate is correctly judged, the ganglion reaches only about half its original size, the pain is slight, and there is no redness. After a few days the ganglion diminishes in size and quickly disappears. If the ganglion is still present at the end of two weeks it is again aspirated and injected, the quantity of sodium morrhuate being increased. If it is thought that the ganglion communicates with a joint, the patient is instructed to keep the limb at rest for a few hours following the injection. No joint pains have followed the injections, and there have been no complications.

Archives de Médecine des Enfants, Paris

33: 583-646 (Oct.) 1930

*Extrinsic Congenital Stenosis of Duodenum as Anatomic Basis of Cyclic Vomiting. U. Camera.—p. 583.
*Blood Pressure in Normal Child. J. Chabrun and Y. Petrovitch.—p. 601.
*Olive Oil in Diet of Acetonemic Children. C. Sainz de los Terreros.—p. 609.
Some Errors of Diagnosis. N. Z. Oumikoff.—p. 612.

Congenital Stenosis of Duodenum as Anatomic Basis of Cyclic Vomiting.—Camera reports a case of cyclic vomiting with acetonuria that he observed for several years. From the first he was impressed by the resemblance of the entire syndrome to the symptoms of subvaterian stenosis of the duodenum. Roentgen examination confirmed the suspicion of a duodenal stenosis and the child was finally cured by an anastomosis between the first portion of the small intestine and the second portion of the duodenum, passing through the transverse mesocolon. The pathogenesis of so-called cyclic vomiting is as yet undetermined. The theories of acetonuria, appendicitis and hepatic disturbances have all been proved unreliable. Camera is convinced, however, that the character and syndrome of the gastroduodenal vomiting that is the chief feature of the disease may be explained if one considers a subvaterian duodenal stenosis as its anatomic basis. The stenoses, whether total or partial, are caused by a lack of or delay in the attachment of the mesocolon in which the entire large intestine has a tendency to fall into the small pelvis, and the mesenteric pedicle, because of this abnormal weight, compresses the duodenum against the posterior wall of the abdomen. Passage through the duodenum is thus blocked and habitual constipation, migraine, and sometimes hepatic intoxication result. The condition is also marked by periodic attacks of vomiting that correspond to those usually described as cyclic vomiting with acetonuria. When the attachment of the mesocolon is merely retarded, as is common in early childhood, the attacks are of short duration. The high localization of the stenosis explains the persistence of the vomiting, the absolute intolerance of ingestion of any substance, and consequently the rapid dehydration that results. Because of this localization of the stenosis, moreover, when the small free portion of the gastro-enteral tube is relieved of its alimentary content the vomit can consist only of the secretions of the gastric and duodenal glands. This liquid mass, driven back toward the stomach when it reaches the point of stenosis, is emitted as by regurgitation when the pylorus is open or with painful contractions when the pylorus is closed. These are the two types of vomiting observed in cases of cyclic vomiting with acetonuria. The acetonuria itself as well as other concomitant toxic conditions that are often present is the result of the mixing of the glandular secretions.

Blood Pressure in Normal Child.—Chabrun and Petrovitch measured the blood pressure of 450 normal children aged from 4 to 15 years. The Pachon apparatus was found to be much more accurate and easier to use than the Vaquez-Laubry method. They observed that the maximum, minimum and differential pressures gradually increased with age. The increase was especially marked between the ages of 12 and 14 years.

Olive Oil in Diet of Acetonemic Children.—Since infantile acetonemia is always caused either wholly or in part by a hepatopancreatic insufficiency due to a defective utilization of fats, Sainz de los Terreros advocates substituting olive oil so far as possible for all other fatty substances in the diet. He suggests giving children bread fried in oil, or dipped in sardine oil, as well as doses of pure olive oil. He also advises the use of cod liver oil in winter. This treatment, together with certain hepatic and pancreatic opotherapeutic preparations, produces an augmentation of the alkali reserve, a decrease in the attacks of acetonemia and a better utilization of proteins and carbohydrates, as well as an increase in the weight of the child. The author feels, moreover, that if olive oil were thus administered whenever hepatopancreatic insufficiency was suspected, most cases of acetonemia could be entirely avoided.

Journal de Physiol. et de Path. Générale, Paris

28: 529-772 (Sept.) 1930

Anavenins: Destruction of Toxicity of Venins by Formaldehyde. M. Arthus.—p. 529.
Mechanism of Raising Body on the Tips of the Toes. M. E. Castex.—p. 544.
*Action of Sodium Fluoride on Basal Metabolism of Rat. L. Goldemberg.—p. 556.
Arrest of Growth in Rabbits by Injections of Tar. A. Babes.—p. 567.
Physiologic Properties of Howell's Heparin. W. D. Yankovsky.—p. 579.
*Chlorination and Alkalization of Organism in Acute Diseases: Tests of Chlorination. C. Achard and M. Enachesco.—p. 587.
Acute Alcoholism. C. Simonin.—p. 596.
*Chlorination and Alkalization of Organism in Acute Diseases. C. Achard and M. Enachesco.—p. 612.
Acute Alcoholic Poisoning in Adults and Children: Coefficient of Fatal Alcoholic Imbibition. C. Simonin.—p. 624.

Action of Sodium Fluoride on Basal Metabolism of Rat.—Since sodium fluoride is known to produce hypertrophy of the thyroid in white rats, Goldemberg performed a series of experiments on rats to determine the influence of this compound on their basal metabolism. He used white rats, black rats and spotted rats (the product of crossing white with black rats). Sodium fluoride was given orally and by intraperitoneal injections. Taken by mouth, a daily dose of 3 or 4 mg. has a certain tendency to lower the basal metabolism; however, to obtain definite results it would be necessary to continue the doses for from six to eight months. From 28 to 35 mg. of sodium fluoride for each kilogram of weight, in aqueous solution of 1 per cent, injected intraperitoneally, is the minimum fatal dose for rats. A single dose of from 15 to 18 mg. for each kilogram of weight, in aqueous solution of 1 per cent, injected intraperitoneally, always produces a decrease in the basal metabolism of the rat. The decrease varies from 12 per cent to 63 per cent in different animals. It begins to appear fifteen minutes after the injection, becomes more intense, and may persist for several hours or even several days. A single dose of from 2 to 3 mg. for each kilogram of weight, in aqueous solution of 1 per cent, injected intraperitoneally produces different effects on the basal metabolism in different animals, and sometimes even varies in the same animal from day to day. The decrease in the basal metabolism thus produced can vary from 24 per cent in some cases to 28 per cent in others. The effects of the injection soon disappear and the basal metabolism returns to normal.

Chlorination and Alkalization of Organism in Acute Diseases: Tests of Chlorination and Alkalization.—Achard and Enachesco made a series of tests to determine the reciprocal action of chlorination and alkalization in acute diseases. As a test of chlorination they administered orally from 10 to 15 Gm. of sodium chloride, sometimes repeating the dose two days later. The chlorine in the blood serum, the chlorine in the urine, the alkali reserve of the blood, the p_H of the urine and the carbonates of the same urine were measured before the test and at regular intervals after the test. In patients without retention of chlorine the test was followed by a rapid elimination of chlorine in the urine; the alkali reserve and carbonaturia were lowered temporarily and then rose sharply. In patients in whom retention of chlorine existed, the same test did not cause increased elimination of chlorine, nor was there an immediate change in the acid-base equilibrium. A similar test was then made for alkalization by ingestion of from 10 to 15 Gm. of sodium bicarbonate. In patients without retention of chlorine the alkali reserve was raised, complete alkalinuria was produced, and the carbonaturia was greatly increased; at the same time chloruria was produced without modification of the chlorine content of the blood. On the other hand, when there was no retention of chlorine, the authors observed an increase in the alkali reserve, alkalinuria and carbonaturia, although chloruria was not produced. A combined test of both chlorination and alkalization gave the same results. The authors feel justified, therefore, in concluding that in a normal condition chlorination produces alkalinuria and alkalization produces dechlorination. However, when a pathologic retention of chlorine is involved, the organism may be chlorinized without being disalkalized, and it may be alkalized without being dechlorinized.

Presse Médicale, Paris

38: 1321-1344 (Oct. 1) 1930

Treatment of Cerebrospinal Meningitis. P. Teissier and J. A. Chavany.—p. 1321.
*Colibacillurias of Digestive Origin: Treatment by Local Antivirus Therapy. R. Jahiel and J. Petetin.—p. 1326.

Colibacillurias of Digestive Origin: Treatment by Local Antivirus Therapy.—Jahiel and Petetin have secured excellent results with local autovaccination in a number of cases of colibacilluria in which other methods of treatment had proved inefficacious. The method employed is as follows: The colon bacillus is obtained from the urine of the patient. In the "vaccination of the intestine" the authors used a microbial emulsion made with a forty-eight hour culture on gelose in Roux boxes; the culture, emulsified in 100 cc., is placed in ten ampules. Since the most obvious symptoms of colibacilluric complications are usually observed in the bladder, vaccination of the bladder is the second part of the treatment, using filtrates of cultures in bouillon ten days old. The treatment of the intestine is undertaken first by administering to the patient morning and evening one ampule of 10 cc. of microbial emulsion, the injection preceded each time by a pill of bile to clean the mucosa and give the vaccine a better contact with the intestinal wall. The vaccine is administered while the patient is fasting. During the treatment the diet is so modified as to reduce the quantity of albumins. After about ten days the treatment of the bladder is initiated. The vaccine is instilled into the bladder in doses of from 10 to 20 cc. three times a week, or more frequently if it is well tolerated. A preliminary lavage of the bladder with sterile water should always be made to remove any mucus or pus that is present. The combined treatment of the intestinal tract and bladder should be continued for fifteen days. It may then be resumed after a week if necessary. Although the vaccination does not always completely eliminate the presence of colon bacilli in the urine, it does render the bacilli harmless by producing local immunization of the cells and thus suppressing pathologic manifestations of the presence of the bacilli.

Schweizerische medizinische Wochenschrift, Basel

60: 837-860 (Sept. 6) 1930

Cancer of Skin: Observations on Patients in Clinics at Bern. Naegeli.—p. 837.
*Incorrect Diagnosis of Appendicitis and Renal Disturbances Located on Right Side. H. Walthard.—p. 842.
*Occurrence of Tubercle Bacilli in Swiss Cheese. G. Sobernheim and H. Meyer.—p. 848.
Color of Urine. W. Graubner.—p. 851.
Hereditary Symmetrical Polydactylism. R. Nicole.—p. 853.

Incorrect Diagnosis of Appendicitis and Renal Disturbances.—Walthard cites several authors who have observed that the diagnosis appendicitis is frequently made incorrectly. He himself admits that about one fifth of the appendectomies performed by him were a failure because the symptoms on which the diagnosis appendicitis had been based were due to renal disorders on the right side. Symptoms from disturbances in the urinary system are most frequently mistaken for signs of appendicitis. The author shows how symptoms caused by such conditions as renal and urinary calculi, bladder disorders, inflammatory diseases of the renal pelvis, infections of the urinary passages, some forms of nephritis, tumors of the kidneys and a diseased prostate may simulate appendicitis and how they may be differentiated. He especially warns against a blind belief in the diagnostic value of tenderness at McBurney's point.

Occurrence of Tubercle Bacilli in Swiss Cheese.—Sobernheim and Meyer made bacteriologic examinations of 111 samples of Swiss cheese. Tubercle bacilli were not detected in the guinea-pigs or in the cultures. They also relate that in 1900, at the bacteriologic institute in Bern, cheese was made from milk into which cultures of tubercle bacilli had been introduced. In this experiment it was found that the bacilli were present only a comparatively short time. They died during the storage. They were not found later than the fortieth day despite the fact that the milk had been contaminated with an unusually large number of bacilli. The authors point out that Swiss cheese is usually not brought to market until it is from three to four months old.

Archivio di Ostetricia e Ginecologia, Naples

17: 547-594 (Sept.) 1930

Tuberculous Ovarian Cysts: Case. A. Albanese.—p. 547.
*Pernicious Anemia in Pregnancy. A. Volpe.—p. 560.
*Reproductive Function Under Influence of Overdoses of Ergosterol. G. Centanni.—p. 586.

Pernicious Anemia in Pregnancy.—Volpe studied hematicologically and clinically a number of cases of anemia in pregnant malarial patients, endeavoring to differentiate between pernicious anemia and other anemic syndromes in pregnancy. He reached the conclusion that pernicious anemia is a peculiar individual reaction to the toxic agent, and refuses to accept the etiologic importance of malaria.

Reproductive Function Under Influence of Overdoses of Ergosterol.—Centanni's study on ergosterol administered for the purpose of determining its influence on pregnancy revealed that that function is one of the most susceptible to the action of ergosterol; in fact, ergosterol may constitute a grave insult. However, if the dose of the substance administered is within therapeutic limits the pregnancy proceeds regularly, with the advantage that the child is born better developed and possessing greater vitality. On the other hand, if the dose is excessive, but the mother is able to survive, the insult is expressed in one of two ways, either conception is inhibited or the fetus dies and is either absorbed within the uterus or expelled through abortion. There remains, in any event, the great advantage of the substance when administered within therapeutic limits. The author is not prepared to say whether the effects of the excessive dose on the procreative function are referable to hypervitaminization or to a product that develops in association with the vitaminic principle.

Archivio di Patologia e Clinica Medica, Bologna

9: 499-604 (Aug.) 1930. Partial Index

*Arteriosclerosis of Pulmonary Artery. F. Schiassi.—p. 449.
*Thrombotic Infarction Caused by Primary Arteriosclerosis of Pulmonary Artery. G. Invernizzi.—p. 590.

Arteriosclerosis of Pulmonary Artery.—Schiassi describes a case of chronic cyanosis caused by arteriosclerosis of the branches of the pulmonary artery. For more than eight years the patient, aged 45, had intense cyanosis, which was even more intense when he made some effort. No other symptom of disease of the heart or of the respiratory tract appeared during that time. The patient (except for the dark color of his lips and of his complexion), appeared to be strong and healthy. He was able to continue at work (first as a peasant and later as a soldier serving at the front during the war). Only three weeks before death he presented a grave syndrome with disturbances of the heart and of the respiratory tract. The following observations were made at necropsy: There was arteriosclerosis obliterans of the right and left branches of the pulmonary artery, starting from the hilus pulmonis and extending to even the smallest branches of the artery. The trunk of the artery was dilated, but neither it nor the point of bifurcation of its two branches was affected by the sclerotic process. In both pleural cavities, large and strong adhesions were found. The author believes that the presence of cyanosis should suggest the diagnosis of arteriosclerosis of the pulmonary artery during life.

Thrombotic Infarction Caused by Primary Arteriosclerosis of Pulmonary Artery.—Invernizzi reviews the literature on the pathology of the pulmonary artery. He describes the clinical and anatomic observations in a case in which the patient, aged 53, while apparently in good health, presented a clinical picture of slow evolution constituted by hemoptysis, which at first was slight and became more and more intense. The patient died two months after the onset of the disease with a syndrome of anemia and cardiac insufficiency. At the necropsy, a thrombotic infarction of the right branch of the pulmonary artery was found. The thrombosis was caused by a generalized primary arteriosclerosis of the artery.

Clinica Medica Italiana, Milan

61: 333-418 (July-Aug.) 1930

*Weil's Disease in Italy. C. Vallardi.—p. 333.
Lipolytic Action of Saliva. O. da Rin.—p. 340.
Anatomic Researches on Spine in Indirect Colitic Syndromes: Visceral Pain. G. Invernizzi.—p. 354.

Weil's Disease in Italy.—Vallardi observed in October, 1929, almost simultaneously, two cases of spirochetosis in the region below Milan. The first patient died with grave icterohemorrhagic manifestations a few hours after admission to the hospital. The second patient recovered without treatment in about one month. The author calls attention to the preicteric symptomatology and to the possibility of suspecting an infection in the beginning. Both patients presented at the start a pseudomembranous angina. Of interest is the behavior of the Wassermann, the Meinicke and the Kahn reactions in the second case with absence of syphilis. The Wassermann reaction became intensely positive during the icteric period and then returned to negative with recovery. The Meinicke reaction was positive only twice, while the Kahn reaction was twice doubtful.

Giornale di Clinica Medica, Parma

11: 847-916 (Aug. 31) 1930

*Intravenous Calcium Therapy in Tuberculosis. G. Reggiani.—p. 847.
Intestinal Syphilis. S. Pilloni.—p. 865.

Intravenous Calcium Therapy in Tuberculosis.—Reggiani gives the first results of a systematic research to determine the exact morphologic reactions of the blood after intravenous injection of a calcium salt and in the course of treatment of tuberculosis. Examination of the blood from twenty minutes to half an hour after the first injection showed a decrease in the number of neutrophils, a corresponding increase in the mononuclear elements and a rather frequent state of eosinophilia, all of which reactions were transitory in character. While the increased number of eosinophils has been noted by various authors, the modifications in the leukocytic formula observed in these experiments have been previously reported only by Becker.

Archiv für klinische Chirurgie, Berlin

161: 335-562 (Sept. 12) 1930

*Can Treatment of Fractures of Long Bones be Simplified? E. Birt.—p. 335.
Fiftieth Anniversary of W. J. Rasumowsky, Professor of Surgery. N. N. Nasaroff.—p. 351.
Blood Serum Cholesterol and Surgical Diagnosis. I. Lang.—p. 355.
Cervical Rib: Symptoms and Surgical Treatment. H. Jacobsohn.—p. 398.
Xanthomatous Giant Cell Granuloma as Cause of Locking of Knee Joint. W. Latten.—p. 416.
Relaxation of Diaphragm (Etiology: Studies Made on the Cadaver). H. H. Kalbfleisch.—p. 429.
*Postoperative Elevation of Diaphragm on One Side. F. Breuer.—p. 443.
*End-Results of Reimplantation of Ureter into Urinary Bladder. F. Dannheisser.—p. 461.
Lateral Dislocation of Vertebrae Caused by Trauma. Fenkner.—p. 475.
*Blood Transfusion, Salt Infusion, and Allowing Blood to Remain in Peritoneal Cavity After Hemorrhages. G. A. Garibdzanjan and A. A. Ożereljeff.—p. 486.
*Incidence of Thrombosis and Pulmonary Embolism (in Leipzig Surgical Clinic During Decennium 1920-1929). D. Sarafoff.—p. 493.
Provisional Storage of Tissues to be Transplanted. E. Kubányi.—p. 502.
Megalosigma (a Clinical Entity: Etiology, Symptoms and Treatment). J. Hagen-Torn.—p. 511.
*Primary Resection for Perforated Gastric and Duodenal Ulcers. S. Judin.—p. 517.
Bacterial Flora of Appendix, Especially Pfeiffer's Influenza Bacillus. E. Hudacsek and F. Kerbler.—p. 540.
Bile Peritonitis Caused by Bile Exuding Through Wall of Gallbladder Without Presence of a Perforation. E. Bundschuh.—p. 549.
Tests of Kidney Function as Diagnostic Aid. A. Rothschild.—p. 558.

Treatment of Fractures of Long Bones.—Birt pleads for more simple methods of treatment of these fractures. He reports cases to illustrate the effectiveness of suspension, extension and the application of an adhesive plaster dressing as originally proposed by Bardenheuer. He enumerates the many advantages of this treatment: The cost is low; it is easy of application; it simplifies the transport of the patient; it favors callus formation; bloody effusions are absorbed early; it quickly allays inflammation; the apparatus is simple and active as well as passive motion can easily be instituted by the patient himself.

Postoperative Elevation of Diaphragm.—Nine cases in which a laparotomy was performed and in which symptoms developed soon afterward indicating a postoperative pulmonary development are reported by Breuer. In each case the roentgen examination disclosed an elevation of the diaphragm on the affected side. The symptoms consisted, in the main, of cough, and of pain on breathing and on pressure over the ribs overlying the insertion of the leaf of the diaphragm. In a few cases pain in the shoulder was also present. These patients all recovered but the diaphragm did not resume its original position. These symptoms developed without previous warning from the third to the seventeenth day after operation. The author believes that disease of the diaphragm and reflex disturbances must be considered in endeavoring to find a cause for the condition and that it has some relationship with the development of postoperative pulmonary complications.

End-Results of Reimplantation of Ureter into Bladder.—Dannheisser relates eight such cases. Two patients died shortly after operation, and in two others a nephrectomy had to be performed later. Of the remaining seven, six were examined from one and a half to ten years after operation. Five had a perfectly formed new ureteral opening, with good function of the kidney to which that ureter belonged; in three cases a hydronephrosis had developed but function was good. The author feels that his results warrant regarding this operation a conservative measure in these cases because it conserves kidney function in an organ which ordinarily is sacrificed. The reasons for implantation in the cases cited were: bladder tumors, including sarcoma and carcinoma; stones in the ureter; lesions of the kidney.

Treatment of Hemorrhage into Peritoneal Cavity.—The results of experiments on dogs are reported by Garibdzanjan and Ożereljeff. These dogs were bled slowly from the femoral artery so as to give opportunity to adjust themselves to the loss of blood amounting to 4.5 per cent of the body weight. In ten dogs the blood withdrawn was transfused into the peritoneal cavity; in ten it was transfused into a vein; in ten an equivalent quantity of physiologic solution of sodium chloride was transfused into a vein, and in three cases only the withdrawal of the blood constituted the experiment. The blood withdrawn and reinjected was first citrated, 0.02 per cent of sodium citrate per kilogram of body weight being added. Not one dog succumbed on the operating table; therefore it was assumed that the quantity of blood withdrawn was not inimical to life. Of the dogs receiving the blood in the peritoneal cavity, 50 per cent remained alive; 90 per cent of those transfused into a vein remained alive and 80 per cent of those receiving physiologic solution of sodium chloride remained alive. Of the latter group of dogs, and including the three that were merely bled, only one animal was alive after the sixth day. The authors conclude that the dangers of severe intraperitoneal hemorrhages are the disturbance of the cardiovascular apparatus, and anoxemia caused by the loss of many erythrocytes. The best treatment is allowing the blood to remain in the peritoneal cavity and adding physiologic solution of sodium chloride. They check the hemorrhage and remove enough of the blood to reinfuse (intravenously) from 400 to 500 cc. diluted with the salt solution in the ratio of 1:3. The remaining blood is left in the peritoneal cavity. This blood is rapidly absorbed, in one or two days, and has the advantage of resembling in characteristics the patient's own circulating fluid.

Incidence of Thrombosis and Embolism in Leipzig.—Sarafoff states that the experiences in the Leipzig clinic were similar to those of other clinics—a peak in the incidence curve in 1924 and another peak in 1929. More cases occur in cold weather than at other times of the year. Neither operation nor sepsis seemed to have any effect on incidence. The same was true with regard to the previous condition of the patient; the anesthesia, the roentgen examination and intravenous therapy all were without noticeable effect on the incidence. Women were affected three times as often as men; increasing age likewise showed an increase in incidence. The cases of pulmonary embolism occurred only among urban residents.

Primary Resection for Perforated Gastric and Duodenal Ulcers.—Judin analyzes two series, totaling 207 cases. In the first series, in which the patients were operated on during a period of three years and nine months, the ulcers were, in the main, sutured and a gastro-enterostomy was performed. The total mortality in this group was 24.4 per cent. If three cancer patients are excluded, the mortality was 22.5 per cent. The end-result is known in forty-eight cases. Half of these complain of various disturbances so that it may be said that this method of treatment is not satisfactory. The second series consisted of seventy-six patients operated on during the past year. In fifty-one, the stomach and duodenum were resected. The total mortality for the series was 22.3 per cent; the mortality in the resected cases was 11.9 per cent. Excluding three deaths due to other causes, the mortality in the resected group was 6.2 per cent. The author concludes, therefore, that early operation (performed in 67 per cent of his cases), consisting of resection of the stomach, should be considered, provided the age and general state of the patient are not contraindications. All operations should be performed under splanchnic anesthesia, and only at the beginning of the operation may ether be used.

Deutsche medizinische Wochenschrift, Berlin

56: 1641-1682 (Sept. 26) 1930

*Relation Between Cardiac Weakness and Angina Pectoris. H. Kohn.—p. 1641.
*Vaccination Against Tuberculosis and Naturally Acquired Immunity. G. Wolff.—p. 1644.
Resection of Entire First Rib in Extrapleural Thoracoplasty and Possibility of an Isolated Removal of Rib from Apical and Upper Fields ("Thoracoplastic Selective Collapse"). W. Graf.—p. 1647.
Plant Coloring Matter and the Growth Vitamin A. E. Bürgi.—p. 1650.
Clinical Significance of Polarization Capacity of Skin (Skin Condenser). W. Lueg.—p. 1652.
Basal Metabolism and Skin Condenser (Lueg) in Incretory Disturbances. K. Grassheim.—p. 1653.

Relation Between Cardiac Weakness and Angina Pectoris.—Kohn directs attention to the diverse opinion regarding the pathogenesis of angina pectoris. Some authorities assume a causal relation between cardiac weakness and angina pectoris, while others think that a spasm of the coronary arteries is the etiologic factor. The question whether cardiac weakness or the opposite, namely, overactivity of the heart, predisposes to angina pectoris is answered by the author in the negative; however, cardiac weakness may become manifest during and after an attack of angina pectoris. On the basis of his observations he is inclined to believe that a spasm of the coronary arteries is the etiologic factor in angina pectoris. For the therapy this is of significance so far as the theory, which considers cardiac weakness as the etiologic factor, has led to the use of cardiac stimulants. However, when it is considered that coronary spasm is the real cause, it becomes understandable that such stimulants as digitalis and strophanthin are more harmful then helpful, because they cause a stenosis of the coronary arteries and thus aggravate the condition rather than improve it. Instead of these stimulants, nitrites should be administered because they have an antispasmodic effect. If, as a result of their habit-forming properties, the effectiveness of the nitrites is reduced, papaverine or theophylline may be given with or without sugar solution. Atropine likewise has an antispastic effect. In cases of total occlusion of the coronary vessels, caffeine and camphor can be resorted to. After an attack of angina pectoris as the result of a total occlusion, rest in bed is necessary and the existing cardiac weakness may be treated with digitalis. In order to counteract the recurrent pain that results from medication with digitalis, an antispasmodic should be administered simultaneously with the digitalis.

Vaccination Against Tuberculosis, and Acquired Immunity.—On the basis of epidemiologic and statistical studies, Wolff reaches the conclusion that the decrease in the tuberculosis mortality is due neither to naturally acquired immunity nor to the vaccination methods of Friedmann or Calmette.

Klinische Wochenschrift, Berlin

9: 1753-1800 (Sept. 20) 1930

Modern Theories Regarding Organic Disorders of Brain. II. Bürger-Prinz.—p. 1753.
*Oxygen Consumption Following Bodily Exertion. D. Jahn.—p. 1757.
*Significance of Raw Egg Yolk for Glycogen Deposition in Liver. I. Abelin.—p. 1759.
Rational Combat of Rickets. H. Hentschel and W. Fischer.—p. 1761.
Action of Pitressin and Pitocin on Peristalsis: Treatment of Paralysis of Intestine (Ileus Paralyticus) with Pitressin. A. W. Elmer, L. Ptaszek and M. Scheps.—p. 1765.
Lactic Acid Metabolism During Pregnancy and Its Relation to Function of Liver and Thyroid. K. J. Anselmino and F. Hoffmann.—p. 1768.
*Influence of Administration of Bilirubin on Blood. L. Popper.—p. 1770.
*Diathermy in Myelitis. W. Österreicher.—p. 1770.
Practicability of Prophylactic Typhoid Vaccination During Most Severe Stage of Epidemic. E. Friedberger.—p. 1771.

Oxygen Consumption Following Bodily Exertion.—Jahn points out that other authors, especially Hill, have come to the conclusion that the increased oxygen consumption during and after bodily exertion is due to the oxidation of the lactic acid that forms in the muscles. However, recent investigations have proved that in the provision of the tissues with oxygen many factors are involved. The author made several experiments. First he gave intravenous injections of a solution of lactic acid to healthy persons and to patients. He found that the oxygen consumption following intravenous injection of lactic acid is much in excess of the oxidative value of the injected substance, and he therefore assumes an irritative action of the lactic acid. This proves that there is no quantitative relation between the increased oxygen consumption and the lactic acid. Later, exertion experiments were made on thirty-five persons. It was noted that following completion of the work the basal metabolism was reduced and only after two hours was it normal again. Diagrams of the results of several other tests are given and the author comes to the conclusion that the lactic acid has an irritating effect on the system regulating the metabolism. However, this action is exerted only by that portion of the lactic acid that goes into the blood stream. Hill's theory regarding the quantitative relation between lactic acid formation and oxygen consumption is therefore no longer tenable. The irritative action probably involves many factors and is dependent on the condition of the sympathetic nervous system. The changes in the basal metabolism following work tolerance tests frequently indicate the individual reaction of a person.

Significance of Raw Egg Yolk for Glycogen Deposition in Liver.—Abelin points out that although egg yolk is not a carbohydrate it nevertheless exerts a great influence on the sugar metabolism. Experiments on rats proved that egg yolk increases the capacity of the liver to form glycogen The same quantity of cane sugar produced larger quantities of liver glycogen in animals that had received egg yolk than in animals that had not been given egg yolk, although their diets had otherwise been the same. In some instances the glycogen content of the muscles was likewise increased. These manifestations may be given various interpretations. In the first place, one would think of the most important factor of glycogen formation; namely, of insulin. On the other hand, the high vitamin content of the egg yolk may be of a certain significance. According to recent investigations the liver stores large amounts of vitamins, especially vitamins A and B. It may be assumed that the vitamins participate in the intensive metabolic processes within the liver. The egg yolk provides large quantities of vitamins A, B and D. But whatever the mechanism of the action of the egg yolk, its glycogen increasing action is of significance for the therapy. Without doubt, besides diabetes mellitus there are other disturbances that impair the glycogen metabolism of the liver, and whenever glycogen deficiency exists the therapy should utilize egg yolks.

Influence of Administration of Bilirubin on Blood.—In investigations on the action of several substances on the formation of blood, bilirubin was likewise tested. The experiments that Popper reports were made on human beings. When 0.05 Gm. of bilirubin was injected intravenously, it was found that the hemoglobin content increased temporarily; however, the number of erythrocytes remained unchanged. The experiments did not reveal whether the increase in hemoglobin was due to a stimulation of the hemoglobin forming organs or to an arrest in the disintegration of the hemoglobin.

Diathermy in Myelitis.—Because other authors had observed that poliomyelitis and other chronic cerebral and spinal diseases could be influenced by diathermy, Österreicher attempted diathermy treatment of the spinal cord in a case of sporadic myelitis. He employed a strip electrode that covered the cervical, the thoracic and the upper lumbar vertebrae. A large plate electrode was placed on the abdomen. The intensity of the current was 0.7 ampere, and the first treatment lasted ten minutes. The time was gradually increased to thirty minutes. The treatment was repeated three times a week. After the third diathermic heat application the patient already showed considerable improvement. After five months the recovery was nearly complete. This favorable result induced the author to institute diathermy treatment in two other patients with myelitis. In these cases he likewise observed a remission of the paralysis and of other neurologic symptoms, and the pathologic changes in the cerebrospinal fluid disappeared. Further investigation of this therapeutic method is recommended.

Medizinische Klinik, Berlin

26: 1357-1392 (Sept. 12) 1930

Cardiac Weakness as Problem of Metabolism. F. Rosenthal.—p. 1357.
Nervous Sequelae of Trauma. M. Reichardt.—p. 1359.
Diagnosis and Therapy of Acute Necrosis of Pancreas. R. Ehrmann.—p. 1363.
Duration of Resorption of Wheals Made Simultaneously with Physiologic Solution of Sodium Chloride and with Isotonic Solution of Dextrose: Acceleration of Resorption by Means of Solution of Pituitary. O. Klein.—p 1364.
Anomalies of Ribs as Cause of Incorrect Diagnosis and Therapy. F. Fleischner.—p. 1366.
Treatment of Pyodermia During Childhood. E. Loewy.—p. 1367.
*Influence of Diet, Deficient in Sodium Chloride, on Gastric Secretion. H. Cohen.—p. 1369.
*Streak Shaped Growth Inhibition of Hair of Head in Patients with Angina Pectoris or Thrombosis. P. Neuda.—p. 1370.
Roentgendiagraphic Examination of Muscle Contraction. G. Boehm.—p. 1372.

Influence of Diet, Deficient in Sodium Chloride, on Gastric Secretion.—Cohen describes his tests in three patients who, for longer periods, had received a diet deficient in sodium chloride; that is, they received daily only from 1 to 1.5 Gm. of salt. The secretory function of the stomach was determined by means of fractional withdrawal of the gastric juice following ingestion of tea. It was found that the salt-deficient diet had not caused a disturbance in the secretion of hydrochloric acid.

Streak Shaped Growth Inhibition of Hair in Patients with Angina Pectoris or Thrombosis.—The growth inhibition of the hair of the head that Neuda noted in patients with angina pectoris, or in those who show a predisposition to thrombosis, is located behind the ear and on the occiput. This manifestation should not be confused with psilosis, for it is only a retardation of the growth. In the discussion of the pathogenesis of this symptom, the mechanisms of thallium alopecia and of syphilitic psilosis are mentioned, and likewise the psilosis of the lateral portion of the eyebrows. Special emphasis is put on the connection with gastro-intestinal disorders. Still more significant, however, appear certain hereditary influences. Investigations on the heredity of patients who show this symptom revealed diseases with an intense toxic influence on the organism, such as cancer and syphilis, and it is probable that the after-effects of this toxic influence become manifest in the offspring.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

86: 1-174 (Sept.) *1930*

Prolapse of Uterus: Geographic Differences. G. A. Wagner.—p. 1.
Diagnosis of Pregnancy: Dienst's Ninhydrin Urine Test. E. Derankowa.—p. 8.
Narcolepsy in Pregnancy. S. Fraymann.—p. 15.
*Menopause: Changes in Blood Pressure. K. von Magyary.—p. 31.
Sterilized Mother's Milk: Nutrient Value. W. Catel.—p. 36.
Idem. M. E. Kayser.—p. 41.
Idem. W. Catel.—p. 46.
*Vaginitis: Biologic Method of Treatment. T. S. Andreitschuk.—p. 48.
*Malignant Tumor of Cervix in an Infant. F. Kohlhaas.—p. 58.
Malignant Syncytioma of Uterine Tube: Case. W. A. Chatunzew.—p. 60.
Myoma of Uterus: Typical and Atypical Roentgen Changes. R. Joachimovits.—p. 65.

Menopause: Changes in Blood Pressure.—Von Magyary states that in women during the menopause one can frequently demonstrate a disturbance in the regulation of the blood pressure. The disturbance may be present even in cases in which the level of the blood pressure is not increased. Treatment with ovarian preparations is frequently followed by a return of the blood pressure to normal. It is therefore evident that in the majority of cases the blood pressure disturbances during the menopause are caused not by pathologic changes in the kidneys or blood vessels but by the loss of function of the ovaries.

Vaginitis: Biologic Method of Treatment.—In the treatment of inflammations of the vagina, Andreitschuk uses a biologic method recommended by Smorodintzew and Tumanow; namely, the introduction into the vagina of pure cultures of *Bacillus vaginalis.* The technic used is as follows: A cotton tampon is saturated with a dextrose-liver broth and to it is added a few drops of a twenty-four or forty-eight hour culture of *B. vaginalis.* After a preliminary irrigation of the vagina with a physiologic solution the tampon is introduced and is left in place from twenty-four to thirty-six hours. To prepare the dextrose-liver broth, a beef liver is cut into large pieces and boiled for thirty minutes in double its amount of water with the addition of 1 per cent of peptone and 0.5 per cent of sodium chloride. The preparation is then filtered, to it is added 2 per cent of dextrose, and the resulting solution is rendered slightly alkaline or neutral. It is then boiled thirty minutes longer, filtered, and sterilized by exposure for forty-five minutes in a current of steam; the sterility of the broth is controlled by placing it for a time in an incubator. The author has used this form of treatment in thirty-five ambulatory patients whose chief complaints were a condition of vaginal irritation accompanied by a sensation of burning and pruritus. Most of them had been under other forms of treatment and stated that although the condition had been relieved temporarily it reappeared when the treatment was discontinued. Of the thirty-five patients given the biologic treatment described, two (6 per cent) did not show improvement, thirteen (37 per cent) improved, and twenty (57 per cent) recovered completely.

Malignant Tumor of Cervix in an Infant.—Kohlhaas reports a case of malignant tumor of the cervix in an infant aged 16 months. The first manifestations of the disease began when the infant was 6 months of age. At that time the mother noticed blood on the diaper and that the infant would no longer suckle. On examination it was found that blood was issuing in small quantities from the genitalia and this continued for three days. At the same time a malodorous discharge appeared and this persisted. The hemorrhage reappeared at intervals of three or four weeks and lasted several days. In spite of the loss of blood, the infant grew well and at the age of 12 months learned to walk. Shortly before and during the hemorrhage she felt unwell and did not eat or play. At the age of 14 months a profuse hemorrhage occurred and the patient was hospitalized. The hemorrhage was stopped by means of a hemostat and tamponade. Repeated examinations for gonococci were then made but none were found. The microscopic examination of detached pieces of tissue revealed a malignant epithelial tumor of the uterus. Under symptomatic treatment the condition progressed rapidly and the child became thin and anemic and died two months later. Postmortem examination disclosed a malignant tumor of the cervix and vagina with extension into the neighboring tissue and compression of the ureters and urethra. Above the point of compression of the urethra it was dilated, as was also the bladder, whose muscular layer was hypertrophied. The ureters, likewise, were dilated and the kidneys presented an extreme degree of hydronephrosis. The uterus was dilated and the myometrium was hypertrophied. Tumor metastases were found in the para-aortic lymph nodes, the liver, the right lung and the right bronchial lymph nodes. Tracheobronchitis was present and both lungs contained foci of bronchopneumonia. The primary tumor had perforated into the common iliac vein, which was thrombosed. Microscopic examination of the tumor of the cervix and of its metastases revealed the same histologic picture. The cells varied in size and most of them resembled epithelium and had large, lightly stained nuclei and a large amount of protoplasm. Some of them, however, were spindle-shaped and resembled fibroblasts. A few contained more than one nucleus and in a few the nucleus was club shaped. Mitotic figures were not numerous but there was a large amount of necrosis and inflammatory infiltration. Since the microscopic picture was not that of a pure carcinoma and still less that of a sarcoma, the condition was diagnosed as an immature malignant tumor.

Monatsschrift für Kinderheilkunde, Leipzig

48: 1-192 (Sept.) *1930*

Influence of Diet on Action of Vitamin D. F. Thoenes.—p. 1.
Calcification of Rachitic Rat Cartilage in Vitro. G. Meyer zu Hörste.—p. 6.
Calcium Resorption and Calcium Retention. E. Hesse.—p. 9.
Special Localization and Amount of Phosphatases in Intestine. W. Heymann.—p. 14.
Gout in Nursling. M. von Schopf.—p. 21.
Effect of Orally Administered Suprarenal Cortex on Blood Picture. W. Catel.—p. 22.
Estimation of Size of Heart of Child from Roentgenogram. F. von Bernuth.—p. 25.
Syphilis in Nurslings: Slight Skeletal Changes as Sole Manifestations. W. Grävinghoff.—p. 30.
*Basal Metabolism in Diabetic Children. Beck.—p. 34.
Tuberculosis: Allergy and Parallergy. H. Fernbach.—p. 35.
Toxic Diphtheria. H. Langer.—p. 43.
*Diphtheria: Treatment with Convalescent Serum. H. Hentschel.—p. 50.
*Glandular Fever: Epidemic. K. Scheer.—p. 59.
Experiments with Staphylococcus Culture Filtrates. G. Remé.—p. 70.
*Whooping Cough: Vaccine Treatment. S. Kramsztyk.—p. 74.
Constitutional Neuropathy as Cause of Nutritional Disturbances. H. Kleinschmidt.—p. 81.
Contagious Diseases: Influence of Hereditary Predisposition. B. de Rudder.—p. 91.
Congenital Myasthenia. E. Schiff.—p. 105.
Climatotherapy for Constitutionally Defective Children. H. Langer.—p. 116.
Constitutional Peculiarities as Basis for Care of Children in Health Centers. C. Coerper.—p. 131.
Skull Fracture in Nursling. H. Reichel.—p. 143.
Luxation of Fourth Thoracic Vertebra in Nursling. K. Feigel.—p. 150.
Tuberculous Hepatitis in Children. G. Roske.—p. 155.
*Diphtheria: Insulin-Dextrose Treatment. L. Kostyál.—p. 162.

Basal Metabolism in Diabetic Children.—In metabolism determinations (Knipping's method) in seven diabetic children, Beck noted that in the acute stage of the disease the basal metabolism was always definitely increased. Following the administration of insulin, however, it diminished. Each exacerbation of the diabetes was accompanied by an increase in the basal metabolism. In infections accompanied by fever, the basal metabolism was greatly increased; the increase appeared before the elevation of temperature began and lasted a long time after it had disappeared.

Diphtheria: Treatment with Convalescent Serum.—Because of the inefficacy of even large doses of diphtheria antitoxin administered early in the recent epidemic of diphtheria in Munich, Hentschel decided to use serum from convalescent children in from the first to the third week of the disease. Two children with a light form of the disease and five with severe pharyngeal diphtheria were treated exclusively with convalescent serum. In sharp contrast to control patients, all the patients treated with convalescent serum made a smooth recovery. It was noted, however, that in the patients treated with convalescent serum the membrane was cast off on an average one day later than in the control patients.

Glandular Fever: Epidemic.—Scheer describes an epidemic of glandular fever that occurred in a children's home and in which the disease was contracted by forty-three nurslings and small children and two nurses. In most of the cases the disease ran a typical course, beginning with a rapidly increasing fever that usually reached 40 C. (104 F.) and then fell by lysis after a few days. The enlargement of the cervical lymph nodes began in most cases one or two days after the appearance of the fever and involved chiefly the nodes in the region of the insertion of the sternocleidomastoid muscle. These lymph nodes enlarged to the size of a plum and had a peculiar tense elastic consistency. In five cases the course of the disease was severe. The fever persisted with remissions for a week and the characteristic thing about it was the appearance of periods of subnormal temperature, particularly at night. In one child a retropharyngeal abscess developed and underwent spontaneous evacuation. Eight days later the lymph nodes on the same side of the neck became necrotic and were incised. A large amount of pus was withdrawn which, like the pus from the retropharyngeal abscess, contained a weakly hemolytic streptococcus in pure culture. In another child also after the disease had persisted for four weeks and the fever had disappeared and the inflammation in the lymph nodes was retrogressing, a deep retropharyngeal abscess developed and was incised. Pus from the abscess was found to contain several kinds of bacteria with a predominance of diplostreptococci. All of the five patients in whom the course of the disease was particularly severe recovered.

Whooping Cough: Vaccine Treatment.—In the treatment of whooping cough, Kramsztyk uses Besredka's vaccine treatment with a bacterial filtrate of pertussis bacilli to which is added a filtrate of bouillon cultures of other bacteria found in the pharynx of children in various stages of whooping cough. At first the pharynx was painted with the filtrate, but this method was found to be unsatisfactory and the atomized method was adopted and the pharynx was sprayed with the filtrate three or four times daily. After from three to eight days of this treatment, both the number and the intensity of the paroxysms decreased. In patients in whom the treatment was begun early enough, the disease ran an abortive course and the convulsive stage did not appear.

Diphtheria: Insulin-Dextrose Treatment.—In the treatment of 141 patients with diphtheria, Kostyál obtained good results with the combined administration of insulin and dextrose. Of the basis of his experiences he recommends an extensive trial of the method, the object of which is to supply the glycogen-deficient liver with this substance and thus stimulate its metabolism and detoxication action.

Münchener medizinische Wochenschrift, Munich

77: 1657-1700 (Sept. 26) 1930

*Occurrence and Causes of Anemia in Renal Disturbances. E Becher—p. 1657.
Incubation Period in Typhoid. G. Schad.—p. 1659
*Clinical Significance of Tubercle Bacillemia. E. Lowenstein—p. 1662.
Tuberculous Infection in a School. A. Landau.—p. 1663.
*Diphtheria Prophylaxis by Means of Löwenstein's Ointment. J. Siegl and K. Hassmann.—p. 1665.
Animal Experiments Regarding Modification of Staphylococcus Infection by Means of Colloidal Sulphur. S. Beck.—p. 1665.
*Should Tonsillectomy be Performed During and Shortly After an Attack of Tonsillitis? S. Levinger.—p. 1666.
Experiences with Twenty Per Cent Solution of Phenobarbital. K H Stauder.—p. 1668.
*Burns: Prevention of Pain and Treatment. M. Novak.—p. 1669.

Occurrence and Causes of Anemia in Renal Disturbances.—Becher asserts that the pale appearance of patients with renal disease is usually due to anemia and not to an angiospasm in the skin. The anemias in patients with renal disturbances are of the type of secondary anemias with low color index, and they may be slight or severe. Anemias of a minor degree, in which the hemoglobin content does not go below 70 per cent of the normal, develop in the absence of a renal insufficiency. These forms of anemia are caused either by hematuria or by the disease that led to the renal disturbance. In the second stage of the diffuse glomerular nephritis there develops likewise such anemias of minor severity. Probable causes of these anemias are a disturbance in the formation of blood or a limited blood supply of blood-forming organs. Other forms of anemia that occur during renal disturbances are those caused by hydremia. They develop either as the result of intravascular retention of water or when the water content of edematous tissues is brought into the blood. In anuria there develops a relative anemia as the result of increasing thinning of the blood. It is probable that in these cases the retention of urea forces the water from the tissues into the blood. Several forms of anemia with a hemoglobin content of about 50 per cent are always found during true renal insufficiency with isosthenuria, pale urine and retention of products of intestinal putrefaction in the blood and in the tissues. This more severe form of anemia develops simultaneously with the retention of the products of intestinal putrefaction and goes parallel with it. It is probable that the products of intestinal putrefaction produce this anemia. The anemia seems to be due to a diminished formation of blood, because signs of an increased disintegration do not exist.

Clinical Significance of Tubercle Bacillemia.—Löwenstein states that tubercle bacilli frequently enter the blood stream. However, there is no clinical symptom on the basis of which tubercle bacillemia can be diagnosed, and up to now there has been no reliable method by which the presence of tubercle bacilli in the blood stream could be demonstrated. First it is discussed as to how the tubercle bacilli enter the blood stream, and then how their presence may be detected. The microscopic demonstration has led to disappointments so frequently that it has been completely given up. The demonstration by animal experiment has the disadvantage that it requires too much time, and consequently the cultivation method has been further developed. The sulphuric acid method, which was perfected by the author several years ago, permits a pure culture of the tubercle bacillus, in that the 15 per cent solution of sulphuric acid destroys all other bacilli. However, cultivation from the blood involves several other difficulties. A suitable nutrient medium had to be found, and because hemoglobin and peptone hinder the cultivation of the tubercle bacillus, a nutrient medium was prepared that contained not peptone but asparagin as the nitrogen source. The medium is prepared from eggs, asparagin and congo red. The technic of cultivation is described. The second part of the article describes the results of the culture test in the various forms of tuberculosis. That tubercle bacilli may be present in the blood stream even when the patient does not have fever was demonstrated in cases of tuberculosis of the lungs, larynx, kidneys, skin, eyes and bones. In two cases of skin disease in which the diagnosis was difficult, the cultivation method revealed tubercle bacillemia. The cultivation method was also employed in twenty cases of erythema induratum and fourteen positive results were obtained. In nine cases of lupus erythematosus there were positive reactions in seven instances. Of four cases of papulonecrotic tuberculid, four gave a positive culture. Of eight patients with genuine tuberculosis of the skin, six gave a positive reaction. In twelve cases of lupus vulgaris the blood culture was positive in four instances. The author comes to the conclusion that his method, which permits a direct demonstration of the disease virus from the blood, is of greater clinical significance than the tuberculin reaction.

Diphtheria Prophylaxis by Means of Löwenstein's Ointment.—Siegl and Hassmann report their observations on forty children who were immunized against diphtheria by means of Löwenstein's ointment. The ointment, which is prepared from a detoxicated unfiltered culture, contains toxoid and killed bacilli. The inunctions are repeated three times at intervals of from ten to fourteen days, and 3 cc. of the ointment is applied each time. In order to test the efficacy of the inunction method the children were subjected to Schick tests. It was found that the immunity develops slowly. But after four months thirty-two of the forty children had become Schick negative. On account of the slow development of the immunity, the immunization should be done during periods when diphtheria is not prevalent. The vaccination with toxin antitoxin mixtures, with toxin antitoxin floccules or with diphtheria toxoid often cause painful local reactions and for that reason often meets opposition. Löwenstein's inunction method, however, is entirely painless and is not dangerous. Accordingly, the authors recommend its wider application.

Tonsillectomy During and Shortly After an Attack of Tonsillitis.—Levinger performed tonsillectomies on 235 patients with peritonsillar abscesses. In sixty of the patients the operation was immediately preceded by a tonsillitis. On the basis of his experiences he comes to the conclusion that the opinion now generally held, that tonsillectomy should not be done during or shortly after an attack of acute tonsillar diseases, is no longer tenable, because this expectant attitude does not always prevent complications. The author thinks that complications are usually caused by a too radical operation at the lower pole of the tonsil. That during his tonsillectomies complications did not develop in spite of the fact that acute inflammations existed, is considered to be the result of his procedure to avoid a complete removal at the lower pole. It is asserted that, provided all the deeper recesses are removed, a tonsillar stump may remain at the lower pole, because even a radical removal does not prevent the after growth of tonsillar tissue. The author stresses that tonsillectomy is not only permissible during the existence of a peritonsillar abscess but is the most favorable form of treatment, especially in cases of recurrent abscesses.

Burns: Prevention of Pain and Treatment.—Novak contradicts the theory advanced by the Sauerbruch clinic that *solutions of procaine hydrochloride-epinephrine create unnatural* conditions in the tissues and thus lower the resistance against infections. This is the case only if, as solvent for the procaine *hydrochloride, either a neutral or a weakly acid physiologic* solution of sodium chloride is employed, because such a solution would not be iso-alkaline with the blood. But if a solution is used that has the alkalinity of the blood the results are favorable. This has been corroborated by several investigators. The author advises that burns be treated by applying immediately sterile cotton compresses that have been saturated with the solutions designated. After from ten to twenty minutes, the compresses are changed. If the burns are deep, the compresses should be applied for about three hours. When this treatment is employed the pain ceases almost instantly, minor blisters disappear after a short time, and the skin becomes again attached to the tissue. The further treatment is done by dusting the wound with iodoform. Wounds that are kept aseptic heal without scars in from eight to ten days. As the main advantage of this treatment the author considers the fact that the pain ceases almost instantly, and this relief of the injured person effects an increase in the resistance and thus promotes the healing process.

Zeitschrift für Krebsforschung, Berlin

32: 367-490 (Sept. 24) 1930

Mixed Carcinoma of Common Bile Duct: Case. A. Fehr.—p. 367.
Demonstration of Growth Rays in Malignant Animal Tumors. H. P. Ypsilanti and R. Paltauf.—p. 372.
Endothelioma Peritheliale Bulbi Pilorum: Case. H. Hamdi.—p. 377.
Transplantation of Inoculation Cancer into Regenerating Nerve Trunks in White Mice. M. N. Meissel and L. T. Larionow.—p. 379.
Cytology of Sarcoma Produced Experimentally in Rats. B. Lipschütz. —p. 387.
*Effect of Dry Diet on Inoculation Tumors. F. Ottensooser.—p. 394.
*Blood Changes in Chickens with Rous Sarcoma. M. Sadi.—p. 405.
Action of Various Lipoids on Growth of Cancer in Mice. P. Rondoni. —p. 416.
Cancer as a Deficiency Manifestation. E. Simons.—p. 425.
Microscopic Picture of Transplantable Saiki Feeding Tumor. A. Llombart. —p. 433.
Precancer: Diagnosis. O. Schürch.—p. 449.
Relation Between Occupation and Cancer. E. Jacobs.—p. 469.

Effect of Dry Diet on Growth of Inoculation Tumors.—Ottensooser states that a dry diet leads to a decrease in the body weight of mice not inoculated with cancer and of the gross weight of mice inoculated with cancer. The injury of the animals is accompanied by a retardation in the growth of the tumor. The length of life of the tumor mice is shortened by the dry diet, but the tumor, compared with the length of life or the net weight of the animal, is affected more by the nutritional injury than is the host. A decrease in the number of positive inoculations occurs only in a series in which the mice are placed on a dry diet before they are inoculated. Metastases are almost completely inhibited by a dry diet. The author believes that the effects of a dry diet on the transplantability, *growth and metastasis of inoculation tumors in mice* are produced entirely or almost entirely by the general quantitative undernutrition.

Blood Changes in Chickens with Rous Sarcoma.—Sadi reports the results of his examination of the blood of seventeen chickens with Rous sarcoma. In all the chickens there was an increase in the number of polymorphonuclears. Their proportion varied from 35 to 80 per cent. This corresponds with the increase in these cells that is usually observed in human beings with cancer. The number of polymorphonuclears did not seem to be directly dependent on the size and degree of ulceration of the tumor. In only two cases was there an increase in the number of eosinophils and in four cases none were present. In all the cases there was present a monocytosis ranging from 15 to 39 per cent. This corresponds with the slight monocytosis observed occasionally in human beings with cancer. The number of mast cells remained unchanged. In most of the cases there was a marked lymphopenia; in one case the proportion of lymphocytes sank to 3 per cent. Immature forms of leukocytes were observed rarely; in only three particularly severe cases were one myelocyte and one promyelocyte observed.

Zentralblatt für Chirurgie, Leipzig

57: 2289-2352 (Sept. 13) 1930

Meckel's Diverticulum and Ileus. F. Schwarz.—p. 2290.
Gastroduodenal Invagination Caused by Sarcoma of Stomach. N. Bogoras. —p. 2291.
*Esophagoplasty: *Two Modifications of Technic in Making* Use of Skin Flaps. W. L. Pokotilo.—p. 2295.
Thrombopathy: Case: Extensive Thrombosis of Veins, Embolism of Pulmonary Artery: Death. H. Dieterich.—p. 2300.
Limits of Normal and Pathologic Pyelography. J. Bitschai.—p. 2303.
Pyelography with Rectal Administration of Contrast Medium. H. Köhler. —p. 2306.

Esophagoplasty.—Pokotilo describes two methods of operating for stricture of the esophagus which make use of skin flaps to supply the excised part of the esophagus. One of these takes a quadrilateral flap from the skin of the neck: the other makes use of a tongue-shaped skin flap from the upper part of the chest wall. A complete description, with illustrations, of each procedure is given.

Zentralblatt für Gynäkologie, Leipzig

54: 2305-2368 (Sept. 13) 1930

*Detection of Hormone of Anterior Lobe of Hypophysis in Tissues from Cystic Mole or from Chorio-Epithelioma. B. Zondek.—p. 2306.
Effect of Short Electric Waves on Testis of Mouse. K. von Oettingen and H. Hook.—p. 2308.
Photographic Property of Roentgen Rays and Its Better Utilization in Roentgen Photography. F. A. Wahl.—p. 2313.
Changes Caused in Joints of Pelvis by Pregnancy and Childbirth. L. Haslhofer.—p. 2317.
*Ovarian Dermoid Perforated into Sigmoid. K. Mayer.—p. 2328.
Use of Tropacocaine for Spinal Anesthesia in Cesarean Section. K. Wiślański.—p. 2330.

Hormone of Anterior Lobe of Hypophysis in Tissues from Cystic Mole or from Chorio-Epithelioma.—Zondek points out that in patients with cystic mole or with chorio-epithelioma the urine contains much larger quantities of the hormone of the anterior lobe of the hypophysis than during pregnancy. Examination of the wall of the cystic mole has revealed that its hormonal content is considerably greater; namely, about five times as great as that of the normal placenta. In a chorio-epithelioma the hormone exists likewise in large quantities. These observations suggest a new diagnostic method, namely, the examination of excised tissues, or those which have been removed by curettage, by means of the implantation method. However, on account of the toxicity of the tissues, especially in case of chorio-epithelioma, the animals often die. Before implantation the tissues should therefore be detoxicated by placing them for twenty-four hours in ether and then drying them by exposure to the air. The ether extracts the poisonous substances but not the hormone, and the animals do not die. In this manner it was possible to test even malignant tumors. By means of sarcomatous tissues from the testes of two patients, the typical hypophyseal hormone reaction could be produced in the animal experiment. This indicates that a correlation exists between malignant tumors of the male genitalia and the anterior lobe of the hypophysis. In cases in which chorio-epithelioma is suspected, tissues excised from the vagina or from the portio vaginalis are implanted into a test animal after previous detoxication. Whenever *this implantation results in the hypophyseal hormone* reaction, the diagnosis chorio-epithelioma is correct because normal tissues do not give a reaction.

Ovarian Dermoid Perforated into Sigmoid.—Mayer reports the case of a woman with dermoids of both ovaries in whom the right dermoid perforated into the sigmoid. Between the first and the second operation fifteen years elapsed, and during this time the patient was never free from pains. It appears that during the first operation the dermoid cyst on the right side had not been completely removed. In the course of the years it became again enlarged and finally perforated into the intestine. The patient discovered hair in the fecal discharge and after that asked medical advice. The examination and the operation are described. By means of cecal fistula the suture on the intestine was protected in the beginning, and the much weakened patient finally recovered.

Okhrany Materinstva i Detstva, Leningrad

1: 1-176, 1929

The Leningrad Scientific and Practical Institute for Protection of Motherhood and Infancy, During Four Years of Its Existence. U. A. Mendeleva.—p. 3.
Value of "Autovitamins" for Growing Organism. P. S. Medovikov.—p. 19.
*Peculiarities of Glycemic Reaction in Early Infancy. V. L. Styrikovich.—p. 28.
*Value of Taccone Test for Differential Diagnosis of Tuberculous and Serous Meningitis. A. I. Chistyakova.—p. 43.
Convalescents' Serum in Treatment of Scarlet Fever in Infants, in Early and Late Stages of Disease. M. G. Danilevich, N. A. Nikitina and E. E. Pesis.—p. 55.
Passive Immunization Toward Measles and Blanching Test in That Disease. L. A. Kolchanova.—p. 65.
Present-Day Questions of Pedology. L. I. Chulitskaya.—p. 74.
Statistics in Regard to Protection of Mothers and Infants. V. V. Paevskij.—p. 91.
Motherhood as a Factor in Morbidity and Mortality. Z. O. Michnik.—p. 107.
Questions Concerning Social Aid for Mothers and Infants. P. I. Lublinsky.—p. 120.
Treatment of Pneumonia and Pleuritis in Children, According to Reports in Recent Literature. A. F. Tur.—p. 136.

Peculiarities of Glycemic Reaction in Early Infancy.—Styrikovich has studied the various phases of the glycemic reaction in infants and on the basis of his observations recognizes the following three types of the reaction: (1) type with curves showing a single rise, encountered in only 37 per cent of the cases, this form being less characteristic of infancy; he distinguishes three subtypes: (*a*) rise to a considerable height and a more or less rapid descent to normal; (*b*) rise to a moderate height, remaining at that height for a time (one hour or longer), sometimes a slight wavelike fluctuation, thereupon a drop—in some cases with a tardy hypoglycemia; (*c*) rise to a modest height with subsequent drop to a lower level on an empty stomach; (2) type with curves with two rises, which also may be divided into three subtypes: (*a*) second rise lower than the first; second wave of smaller volume than the first; (*b*) second rise attaining or surpassing the level of the first, and the second wave in volume equal to or exceeding the first; (*c*) second rise rapid and in a short time return to normal; (3) type with curves with three rises (a rare form).

Taccone Test for Differential Diagnosis of Tuberculous and Serous Meningitis.—Chistyakova states that his observations on the Taccone test have led him to the conclusion that that test is by far more sensitive than all other albumin tests and, more particularly, than the Pandy test. Secondly, he brings out that the Taccone test not only reveals an increased amount of albumin occurring in every inflammatory process but also affords an opportunity of discovering macroscopic manifestations of albumin formation in various types of disease of the central nervous system, and, more especially, makes possible a sharp differentiation between serous meningitis and tuberculous meningitis. Whereas a positive Pirquet reaction would indicate the presence of a tuberculous infection somewhere in the organism or, in certain cases, the existence of a primary serous meningitis, the Taccone test would, in the latter event, point to a nontuberculous serous meningitis.

Vrachebnoe Delo, Kharkov

13: 482-559 (April 15) 1930

**Bacteriophage Treatment of Typhoid.* I. Ruchka and M. Melnik.—p. 492.
Relation Between Malaria and Epilepsy. V. Kemen.—p. 495.
Significance of Intracranial Hemorrhages in Fetus or in the New-Born for Obstetrics. S. Askushkina and V. Konstantinov.—p. 500.
*Phosphorus Content of Blood in Children. P. Fedorov.—p. 505.
Pathology and Treatment of Carbon Monoxide Poisoning. A. Cherkes.—p. 507.
Influence of Hormones on Thrombocyte-Producing Function of Bone Marrow. P. Denisova-Lushchevskaya.—p. 511.

Bacteriophage in Treatment of Patients with Typhoid.—The bacteriophage used by Ruchka and Melnik was prepared as follows: To each 100 cc. of a bouillon, 1 cc. of which contained 250 million typhoid bacilli, 2 cc. of bacteriophage was added. After a thorough stirring, the mixture was placed in an incubator at a temperature of 37 C. (98.6 F.) for from twelve to eighteen hours. Then it was passed through a Chamberland L^5 filter, left in the incubator for one or two days, and poured into sterile tubes or ampules. The latter were placed in the incubator for a few days. The bacteriophage was not used before having been kept for a few weeks at room temperature. Its titer was 10^8. The harmlessness of the bacteriophage was ascertained by subcutaneous or intravenous injections in rabbits. Moreover, 10 cc. of the bacteriophage was taken orally by one of the authors. Of sixty-nine patients with a severe form of typhoid, fifty-two were given the bacteriophage orally; seventeen were given subcutaneous injections. Usually one dose of 10 cc. of the bacteriophage was given in water, containing a small amount of sodium bicarbonate, on fasting; rarely the dose was repeated the next day. In cases of subcutaneous injections, a dose of from 1 to 3 cc. was given in the abdominal wall; in a few cases the injection was repeated. The reactions to the bacteriophage consisted in the development of diarrhea, in a reappearance of the rash and in increase in perspiration. The bacteriophage treatment almost constantly resulted in a decrease in the fever by 1 or 2 degrees, two or three days afterward; in most of the cases, this was preceded by a rise in the temperature by from 0.3 to 0.8 degree. The general condition improved the next day. The reactions were more pronounced when the bacteriophage was used subcutaneously. Of the patients treated, four (5.8 per cent) died. One of them contracted erysipelas after having recovered from the typhoid, another was admitted to the hospital in a hopeless condition and a third suffered with a grave pneumotyphoid. During the same epidemic, the mortality among patients not treated with the bacteriophage was from 7.5 to 8.5 per cent.

Organic and Inorganic Phosphorus Content of Blood in Children.—Fedorov examined 1,000 samples of blood withdrawn from 254 healthy children, aged from 7 to 15. The average amount of inorganic phosphorus in the blood of boys and of girls proved to be about the same; it was 3.97 mg. per hundred cubic centimeters. The amount of the organic phosphorus was 6.02 mg. per hundred cubic centimeters. According to other authors, the amount of inorganic phosphorus in the blood of young children varies from 4.2 mg. to 5.2 mg. per hundred cubic centimeters; in the blood of adults it varies from 2.4 mg. to 2.8 mg. and it reaches about 1.85 mg. at the age of 50. While the total amount of the inorganic and organic phosphorus was about 10 mg. in children, that in adults was found to be from 10 to 11 mg. While the total amount of the phosphorus is about the same in children and in adults, the ratio between the inorganic phosphorus and the organic phosphorus differs in them. The author assumes that there is a connection between the amount of the inorganic phosphorus and the intensity of oxidation processes in the organism. Thus the amount of the inorganic phosphorus decreases in adults because the oxidation processes are reduced; it is lowered also in children with rickets on account of a diminished metabolic rate. Fedorov did not observe any seasonal changes in the amount of the inorganic phosphorus, in children.

Acta Rheumatologica, Amsterdam

2: 1-48 (Sept.) 1930

Treatment of Muscle and Joint Rheumatism in Orthopedic Clinic in Munich. F. Lange.—p. 4.
Some Reports of Congress at Liége. J. Foged.—p. 5.
Developments in Problem of Arthritis. R. Pemberton.—p. 11.
Disorders of Peripheral Circulation (in Skin) in Rheumatism. M. Laignel-Lavastine.—p. 14.
Troubles in Circulation of Skin in Rheumatic Diseases. J. van Breemen.—p. 15.
A Form of Omarthritis Accompanied by Vasomotor Disturbances in Corresponding Hand and Anxiety Neurosis. G. Kahlmeter.—p. 20.
Calcium Content of Blood and Chronic Joint Rheumatism (Arthritis). M. Bastos and L. Mazo.—p. 22.
Report on Campaign Against Rheumatic Diseases in Denmark. H. Jansen.—p. 25.
Social (Economic) Significance of Rheumatic Diseases. A. Fischer.—p. 26.
Orthopedic Surgery and Rheumatic Disturbances. M. Ory.—p. 28.
Rheumatic Disorders of Soft Parts (Muscles: Subcutaneous Fascia). W. Ruhmann.—p. 29.
Causes, Conditions and Treatment of Rheumatism. W. B. Snow.—p. 32.
Acute Rheumatism as a Manifestation of Rheumatic Fever. F. Bach.—p. 33.
The Acute Cellulalgias. Brandligt.—p. 36.

Troubles in Circulation of Skin in Rheumatic Diseases.—The observations in disturbances in the circulation of the skin in rheumatic sufferers, van Breemen states, are of full significance for the place of observation only and comparisons with countries that have another climate or a different type of population cannot be made without considering these differences.

Omarthritis Accompanied by Vasomotor Disturbances.—The ordinary isolated arthritis of the humeroscapular articulation, omarthritis, is a typical form of arthritis which, at least in Sweden, is of common occurrence. It generally occurs in presenile years, round about 60, and is characterized by an increasing stiffness usually in one of the shoulder joints. The patient notices that something prevents him from carrying his hand behind the neck (to the hair) or behind the back (e. g., in buttoning his braces). To start with this restricted movement in the shoulder joint is the only symptom. The stiffness increases, and the movements are executed with greater and greater difficulty and elicit gradually more pain. Spontaneous pains, aching, are as a rule altogether absent at first. Later on a fairly moderate spontaneous ache often sets in, typically distributed from the anterior aspect of the humeroscapular joint along the anterior medial border of the humerus down to the inner humeral condyle. The pain in the uncomplicated form of omarthritis does not extend any farther, unlike the pain of primary brachial neuralgia, which at the outset radiates right down to the wrist and often frequently right out to the tips of the fingers. In a case of long standing, for weeks or months, it sometimes gives rise to secondary neuralgia, which then of course naturally extends down to the fingers. Kahlmeter, however, has found such forms of neuralgia secondary to omarthritis unusual. The prognosis of the ordinary "presenile" omarthritis is exceedingly favorable if rightly treated; i. e., exclusive treatment by movements. The etiology is entirely obscure. In most of these cases of omarthritis with vasomotor trophic disturbances of the hands and fingers the patients are at the same time suffering from an exceedingly well marked anxiety neurosis. The course of procedure is usually that the patient begins to complain of discomforts in his shoulder simulating an ordinary omarthritis: he begins to feel difficulties in moving his shoulder. Fairly soon, however, and often before the stiffness in the shoulder has as yet become particularly well marked, the hand and fingers begin to swell and at the same time a condition of anxiety sets in. The patient becomes depressed and brooding, anxious and worrying about everything, weeps easily, and so on. In some cases the picture is one of a true melancholia with inhibition and ideas of sinfulness, but as a rule it is the anxiety and the tendency to weeping that remain the dominating features. As far as Kahlmeter has been able to ascertain, most of the patients have never before shown the slightest sign of neurotic tendency, at least of any marked degree. He is convinced that their anxiety in most cases is a temporary clinical symptom not based on reaction of an originally neurotic individual to the discomforts of a somatic disease but a symptom just of this somatic condition analogous with other so-called somatic symptoms. He is convinced that the omarthritis, the vasomotor disturbances in the hands and fingers and the anxiety have all a common cause, that they are collateral symptoms, and this is supported by the fact that in the recovery of the patient which, as a rule, is the case, the anxiety as well as the vasomotor changes undergo simultaneous and parallel improvement while the mobility in the shoulder joint returns.

Acta Chirurgica Scandinavica, Stockholm

66: 275-489 (Sept. 1) 1930

Right Osteogenic Genu Varum with Congenital Hemiatrophy of Upper Tibial Epiphysis. H. L. Rocher and G. Roudil.—p. 275.
*Case of Echinococcus Cysticus Intraspinalis. C. C. Fleischer-Hansen.—p. 293.
*Peculiar Case of Carotid Tumor. B. Bager.—p. 311.
*Acute Free Perforation of Gastric and Duodenal Ulcers. C. Semb.—p. 315.
*Two Cases of Cardiospasm and Dilatation of Esophagus with Successful Operation by Heyrovsky's Method: Recovery. P. Häggström.—p. 345.
Studies in Wound Infections. F. Serck-Hanssen.—p. 372.

Case of Intraspinal Echinococcus Cyst.—The case of a married woman, aged 49 years, is recorded by Fleischer-Hansen, in whom both the neurologic and the roentgenologic examination revealed a tumor medullae spinalis at the level of the eighth dorsal segment. Through laminectomy, with removal of the arches of the sixth, seventh and eighth dorsal vertebrae, at the level of the seventh dorsal vertebra, an intraspinal, epidural cyst, almost the size of a plum, was revealed which proved to be an echinococcus cyst with the typical cyst wall, daughter cysts, hooks and scolices. The cyst was removed and the patient recovered.

Peculiar Case of Carotid Tumor.—Bager describes a case of tumor of the carotid gland atypically situated on the medial aspect of the carotid artery and quite distinct from this. On resection about a year later of the considerably enlarged left thyroid lobe, this was found to be made up of a tumor of identically the same carotid type. It was probably a question of metastasis at an early stage in the thyroid.

Acute Free Perforation of Gastric and Duodenal Ulcers.—Semb's analysis of 166 cases shows a considerable increase—absolute and relative—in the number of juxtapyloric ulcers in young men. The treatment adopted in the greater number of cases was suture and gastro-enterostomy with flushing out of the abdomen through a crisscross incision in the right fossa iliaca. This treatment has, especially in the juxtapyloric ulcers, yielded excellent results. Primary gastro-enterostomy is well endured. It does not seem to involve any great danger for the spreading of infection and it affords excellent drainage of the stomach. Postinvestigation shows that gastro-enterostomy in case of perforating ulcer yields a larger percentage of cures than is usual in cases of chronic ulcer.

Two Cases of Cardiospasm and Dilatation of Esophagus with Successful Operation by Heyrovsky's Method.—Häggström relates two cases of cardiospasm in which esophagogastrostomy brought about good results. The first case was that of a girl, aged 20, who at the age of 13 had been taken ill with diphtheria and who on the third day of illness developed difficulties in swallowing, symptoms that had subsequently persisted. A subdiaphragmatic esophagogastrostomy was performed. During the following twelve months the patient increased in weight by 15 Kg. and had no difficulty with swallowing. She could eat anything. Roentgen examination nine and fourteen days after the operation showed some retention of the opaque meal in the esophagus but examination four years after the operation showed that the passage through the lower part of the esophagus and the cardia was about as wide as a lead pencil and had an S-shaped course through the diaphragmatic vault. The esophagus was not dilated above the cardia. There was no retention of the meal taken. This case is of particular interest because it is the only case in which the dysphagia has appeared in direct connection with an attack of diphtheria. The second case was that of a man, aged 30, who since childhood had had difficulty in getting food down the gullet. His difficulties had gradually become worse despite prolonged treatment by sound. Subdiaphragmatic esophagogastrostomy was performed and since then the patient has been free from difficulties in swallowing. Roentgen examination also shows the food passing down the stomach without difficulty. Yet in this case the prognosis must be considered fairly serious because of the advanced stage of the patient's pulmonary tuberculosis.

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THE PRENATAL TREATMENT OF SYPHILIS

WITH ESPECIAL REFERENCE TO EARLY SYPHILIS IN THE MOTHER[*]

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On reviewing the literature regarding the question of syphilis and pregnancy, one is impressed by the statistical studies showing the marked reduction of fetal and neonatal death in which the disease is recognized and judicious treatment instituted. Bartholomew,[1] comparing a series of 100 treated syphilitic pregnant women with 100 untreated, found premature births twice as frequent, stillbirths three times as frequent, abortion seven times as frequent, and infant deaths up to ten days after birth nine times as frequent in the untreated as in the treated patients. Armstrong[2] found the stillbirth rate reduced from 24 per cent among the untreated mothers to 6.3 per cent in the treated cases. Ballantyne[3] reported fetal and neonatal accidents in untreated cases to be 606 per thousand, as against 50.7 per thousand in treated cases. McCord,[4] Williams,[5] Welz and Van Nest,[6] and others have reported more or less similar figures.

Other observers have shown in addition that the product of conceptions in a fair majority of cases may entirely escape infection if the mother is treated sufficiently early and vigorously. Beck[7] reported an incidence of 6 per cent of syphilis in the offspring of syphilitic mothers who had received a fair amount of treatment during pregnancy. Williams[8] reported that without treatment 48.5 per cent of the children of syphilitic mothers presented signs of syphilis, while with so-called efficient treatment during pregnancy, only 6.7 per cent of the infants were syphilitic. Marshall[9] reports 35 per cent syphilitic children in the treated cases, as against 78.3 per cent in the untreated. Marshall's cases include only those women in whom the syphilis was less than of five years' duration. Gammeltoft,[10] Belding[11] and others have contributed similar comparisons, but for the most part the percentage of nonsyphilitic children resulting from treated syphilitic mothers, although sufficiently high to be very encouraging from the therapeutic standpoint, has not been as high as recorded by Beck[7] and Williams.[8] Jeans[12] states, without reference to treatment, that 75 per cent of all the offspring of syphilitic families are infected. McCord[4] concludes from a study of 250 pregnant syphilitic women who had been under treatment that "babies born of mothers with serologic evidences of syphilis are syphilitic, and prolonged study and work will prove them so in the majority of cases."

It is of considerable interest to note that an overwhelming majority of the cases studied in these reports were those in which the age of the syphilis was either unknown or at least of several years' duration, and very few presented early clinical manifestations of the disease. Lack of early clinical manifestations in these cases observed could be attributed not only to the age of the infection but also to the fairly well established fact that pregnancy apparently aids the syphilitic defense mechanism in the mother. This was demonstrated experimentally by the work of Brown and Pearce.[13] They found that, when pregnant and lactating rabbits were inoculated with syphilis, only half of the animals developed evidence of primary lesions, while all the controls developed lesions in the usual time. Stokes[14] goes so far as to state that "pregnancy is treatment for syphilis in the woman."

In spite of the inhibitory effects of pregnancy on syphilis, it is probable that in gravid women with early active clinical syphilis contracted about the time of conception, the possibility of a full term living child is rather remote when treatment has not been instituted; and under similar circumstances, the birth of a healthy child is a remote possibility. Under these conditions the statement that "pregnancy is treatment for syphilis in the woman" would appear to lose its force. Whatever protection gravidity gives would appear simply to render the infection for the time being occult.

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[*] Studies and contributions of the Department of Dermatology and Syphilology of the University of Michigan Medical School, service of Dr. Udo J. Wile.

[*] Read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Bartholomew, R. A.: Syphilis as a Complication of Pregnancy in the Negro, J. A. M. A. **83**: 172 (July 19) 1924.
2. Armstrong, Irene: Control of Venereal Disease in Prenatal Patients, Pub. Health Nurse **21**: 574, 1929.
3. Ballantyne, J. R.: Antenatal, Intranatal, and Neonatal Death, Brit. M. J. **2**: 583 (Sept. 30) 1922.
4. McCord, J. R.: Syphilis and Pregnancy: Some Results Obtained from Treatment: An Analysis of 250 Cases, Am. J. Syph **12**: 181 (April) 1928.
5. Williams, J. W.: The Significance of Syphilis in Prenatal Care and in the Causation of Fetal Death, Bull. Johns Hopkins Hosp. **31**: 141 (May) 1920.
6. Welz, W. E., and Van Nest, A. E.: Observation on the Treatment of Syphilis in Pregnancy in the Department of Health in Detroit, Am. J. Obst. & Gynec. **4**: 174 (Aug.) 1922.
7. Beck, A. C.: A Preliminary Report on the Treatment of Syphilis Complicating Pregnancy, Am. J. Obst. & Gynec. **2**: 416 (Oct.) 1921
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9. Marshall, C H. Prenatal Syphilis: Effects of Antepartum Treatment, J A. M. A. **91**: 702 (Sept. 8) 1928.
10. Gammeltoft, S A.: Syphilis and Pregnancy, Am. J. Obst. & Gynec. **15**: 747 (June) 1928
11. Belding, D L. The Effect of Treatment of Syphilitic Pregnant Women upon the Incidence of Congenital Syphilis, Am J. Syph. **11**: 73 (Jan) 1927
12. Jeans, P C.. Syphilis and Its Relationship to Infant Mortality, Am J Syph **3**: 114 (Jan.) 1919.
13. Brown, W N., and Pearce, Louise: On the Reaction of Pregnant and Lactating Females to Inoculations with Treponema Pallidum, Am. J. Syph. **4**: 593 (Oct.) 1920
14. Stokes, J H Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1926, p 1055.

Since the final outcome of gestation depends so definitely on the age and activity of the infection in the mother, we felt that the efficacy of antisyphilitic therapy in pregnant women could be better evaluated if a group were studied in which the syphilis antedated pregnancy by a short time, coincided with conception or occurred during the gestation. Although our material is comparatively small, we feel justified in presenting this report because of the recent age of infection and the number showing early active clinical syphilis.

This study embraces a series of 100 cases of pregnancy complicated by syphilis in which careful physical examination revealed the patients otherwise in good health. The personnel of this group is made up largely of young girls, the average age being 19.7 years, 65 per cent of whom were unmarried. This high percentage of illegitimacy is due largely to the fact that the University Hospital at Ann Arbor is a state institution and is so situated that these unfortunate girls can be sent in during the early periods of gestation at the expense of the state, and remain in more or less obscurity until after the puerperium.

We felt it of particular interest to note that in this group the average age of the infection at the time of examination was 13.8 months. Apparently 35 per cent contracted their infection at the time of conception, there being a history of but one exposure; 15 per cent contracted their infection two to three months before conception and 5 per cent two to three months after conception, giving a total of fifty-five cases, or 55 per cent, in which infection occurred at or shortly after the time of conception. We observed early active clinical syphilis in forty-two patients of our series, one presenting a primary sore, one presenting a primary with secondary manifestations, and forty with florid secondaries.

BIOLOGIC REACTION

Opinions are at considerable variance as to the reliability of the Wassermann or Kahn tests during pregnancy. That false positives in pregnant women are practically negligible has been shown by Boas, Gammeltoft and Siecke,[15] Stillians [16] and others. It is generally agreed that the strongly positive Wassermann test in the pregnant women, verified on repetition, is diagnostic of syphilis. All are more or less familiar with the false negative in pregnancy. Moore,[17] in his study of 200 pregnant women, of whom 32 had demonstrable secondary syphilis, found that 10 per cent of the latter group were serologically negative. Two years ago the Wassermann reaction was replaced in this clinic by the Kahn precipitation test; hence part of our series is reported in terms of the Wassermann and part by the Kahn test. Of the entire group, the Wassermann or Kahn test on the blood serums was strongly positive in 95 per cent, weakly positive in 4 per cent, and negative in 1 per cent. Those presenting active syphilis were all strongly positive.

PREVIOUS PREGNANCIES

As this group is composed largely of young unmarried women in whom the syphilitic infection was comparatively young, we did not feel the outcome of the previous pregnancies significant. Seventy-six of our series were primiparas; the remaining 24 had had 37 previous pregnancies, in which 16 children were born before infection and consequently were apparently healthy. In the 21 remaining pregnancies, 7 infants came to term, 4 of whom showed definite evidence of congenital syphilis; the other three were not examined by us and hence should be classified as questionable. There were 6 spontaneous miscarriages presumably due to syphilis, and 8 miscarriages induced during the early months by instrumentation. From this it is seen that approximately one third of the total previous pregnancies were syphilized, while one half of those conceived since their infection were syphilitic.

SPINAL FLUID OBSERVATIONS

Lumbar puncture was done on all patients when seen in the early months of pregnancy. We felt that after the sixth month, this procedure was contraindicated because of its occasional abortifacient effect. The spinal fluid of 64 patients was examined, and of these, 51, or 79.7 per cent, were entirely negative; 6, or 9.4 per cent, were strongly positive (by Wassermann or Kahn tests) and showed characteristic changes in cells, solids and the colloidal gold curve; 4, or 6.2 per cent, were weakly positive, and 3, or 4.7 per cent, showed an increase in cells and solids with no other observations. Of the 13 cases showing laboratory evidence of cerebrospinal involvement or invasion, only 2 showed clinical evidence of syphilitic central nervous system disease.

HISTOLOGIC STUDIES OF CORD AND PLACENTA

McCord,[18] from a study of 86 placentas of syphilitic women with no treatment, found syphilitic changes definite and suggestive in 45 per cent, while 55 per cent were essentially negative. The same author,[4] from a study of 192 placentas of treated syphilitic patients, found 28.6 per cent positive, 30.7 per cent "influenced by treatment" and 41.1 per cent negative. Klaften [19] found, on examining a similar group, from 20 to 30 per cent of the placentas showing evidence of syphilis. Of óur series, histologic examination was made on 98 of the cords and placentas by Dr. Warthin, director of the pathology laboratory of the University Hospital. Seventy-one were reported negative, 12 as showing definite evidence of syphilis and 15 as being suspicious or suggesting a healed syphilitic process. Of the 27 placentas reported as being syphilitic, all but 2 of the blood specimens taken from them at birth were reported positive by the Wassermann or Kahn tests.

TREATMENT

Treatment was instituted in the form of intravenous asphenamine, followed by mercury inunction, immediately on recognition of the disease. The average time for beginning treatment was about the nineteenth to the twentieth week of pregnancy. Each patient had a complete physical examination and urine analysis. If there were no contraindications, the patients were hospitalized and kept under careful observation following each injection, so that we felt that fairly intensive courses could be given with the least possible danger to mother and fetus. Most of our series (82 per cent) received *arsphenamine*; the remaining

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[15] Boas, Harold; Gammeltoft, S. A., and Siecke, Karen: Arch. f. Gynäk. **128**: 537 (May 15) 1926.

[16] Stillians, A. W.: The Reliability of the Kolmer-Wassermann Reaction in Pregnancy, Arch. Dermat. & Syph. **17**: 318 (March) 1928.

[17] Moore, J. E.: Studies of the Influence of Pregnancy in Syphilis, Bull. Johns Hopkins Hosp. **34**: 89 (March) 1923.

[18] McCord, J. R.: Two Hundred and Forty-Three Fetal Autopsies: A Syphilitic Study, J. A. M. A. **88**: 626 (Feb. 26) 1927.

[19] Klaften, E.: Die Prinzipien der antisyphilitischen Behandlung der Schwangeren, Arch. f. Gynäk. **135**: 620 (Feb. 11) 1929.

18 per cent received neoarsphenamine. Courses were given with from three to six injections in a course and an interval of from one to three months allowed between courses, during which time mercury was administered in the form of the inunctions. Our patients averaged 2.2 Gm. of arsphenamine, which is approximately the amounts given by Marshall,[9] Beck,[7] McCord [4] and others. Amounts given by Bartholomew [1] were considerably lower. Some of our patients received as much as 4 Gm. of arsphenamine during pregnancy, and none showed untoward effects as a result. The average amount of mercury for the group was a course of thirty-five inunctions.

The treatment of syphilis during pregnancy, like the treatment of syphilis under other conditions, is a much debated question. We feel that, in view of the extra burden of pregnancy thrown on the parenchymatous organs of the mother, even a greater attempt at treating the patient rather than the disease should be made than is advocated for the treatment of syphilis alone. For this reason rigid criteria of treatment should be avoided and each patient considered as a therapeutic problem to be solved according to the indications and contraindications.

We observed no reaction of any import that could be attributed to the intravenous administrations of arsphenamine. Gammeltoft,[10] Stokes,[14] Bartholomew,[1] McCord [4] and others agree that, if the patient is kept under careful observation and the drug cautiously given, reactions are almost negligible. Buschke [20] considers abortions from arsphenamine frequent during the first part of gestation. We failed to observe any definite relationship between intravenous arsphenamine and miscarriage or abortion.

Under our therapeutic regimen, there were delivered from the 100 syphilitic women 92 living babies, of whom 7 were premature and 85 were full term. Of the remaining 8, 3 were premature stillbirths, 2 were full term stillbirths, and 3 were born prematurely but lived only a few hours. Of the 8 ending disastrously, all showed evidence of syphilis at the autopsy table. Six of the latter group were the products of apparent conceptional syphilis.

The Wassermann or Kahn tests were done on the cord blood of the 92 living children. Forty-four were reported as strongly positive, 17 as weakly positive and 31, or 33.7 per cent, as negative.

The early diagnosis of syphilis in the living offspring of treated syphilitic women is extremely difficult. Very few of these infants show definite clinical evidence of the disease at birth and a certain percentage fail to show serologic evidences, and yet if allowed to go untreated the disease may manifest itself within the first few months while others may go on to puberty and even after before developing diagnostic signs. Obviously this problem presents two aspects: first, the stand taken by Welander,[21] Beck [21] and others, that every child born of a syphilitic mother should receive antisyphilitic therapy whether or not it presents clinical or serologic evidence of the disease, and, secondly, that only those should be treated that present definite diagnostic criteria, as advocated by Gammeltoft,[10] Ahmann,[21] Almkvist [21] and others. As we were dealing with a group of irresponsible young girls in whom the infection was young, we were inclined to take a middle stand and treat every infant in whom we felt there were positive or suggestive evidences of the disease. Basing our diagnosis on (1) general examination of the infant, (2) cord blood and infant blood Wassermann or Kahn tests, (3) placental involvement and (4) the activity and age of the syphilis in the mother, we found that 26 of the 92 living infants apparently had escaped infection, while 66 fell in the group we considered should have immediate antisyphilitic therapy.

TREATMENT OF INFANTS

Treatment was instituted in these 66 cases within the first two weeks of life. This consisted of six weekly intravenous injections of neoarsphenamine. (Those in whom venipuncture could not be done received six intramuscular sulpharsphenamine injections at weekly intervals.) They were all observed over a period of from seven to eight weeks following birth, during which time they were found to tolerate the drug, and they gained weight well within normal limits. Following the sixth injection, the infants were discharged with either mercury with chalk, to be taken by mouth, or mercury in the form of inunctions. The untreated or apparently nonsyphilitic group were observed for a variable period of from four to eight weeks. If nothing developed at the end of this time, they were discharged and the mother was instructed to report here or to her home physician at the end of three months for observations and repeat serologic examinations.

*Outcome of Pregnancies from One to Five Years After Delivery**

	Treated	Untreated	Total
Number of cases	66	26	92
Children living and apparently well, 1-5 years	52	19	71
Children living at end of second month (never heard of again)	8	5	13
Children died of syphilis	1	2	8
Children died of pneumonia	3	0	
Children died, cause unknown	2	0	

* Reports obtained with the help of the social service department.

Total traced, 79; of these, 71, or 89.8 per cent, were living and apparently well from one to five years later.

Infants in whom we felt there were positive or suggestive signs of congenital syphilis were given six weekly intravenous injections of neoarsphenamine.

Few of these patients have returned for observation or further treatment, so that a proper evaluation of our neonatal treatment cannot be made. However, during the past three months, with the aid of our social service department, we have attempted to trace these infants. Questionnaires were sent out inquiring as to the present status of the children.

The table as nearly as could be determined shows the end-results of our labors. Of the ninety-two living births, two of those alleged to be nonsyphilitic developed acute syphilis and died within the first three months of life. Of the treated group, three died within the first year, two of pneumonia and one of syphilis; one died the second year and one the third year, cause unknown, while another died the third year of pneumonia. Seventy-one of these children were living and in apparently good health, from one to five years after birth. Thirteen could not be located. So that of the seventy-nine infants traced, 89.9 per cent were living from one to five years afterward. We attribute this high percentage of infants surviving the first few years of life largely to the combined prenatal and neonatal treatment.

CONCLUSIONS

1. Prenatal treatment of early syphilis results in a marked decrease of the feticidal effects of the disease.

2. A slightly higher percentage of syphilitic babies occurred in our group than has been recorded by others.

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[20] Buschke, quoted by Klaften (footnote 19).
[21] Quoted by Gammeltoft (footnote 10).

This higher figure is readily accountable to the earlier age and the activity of the syphilis in our series.

3. Arsphenamine is well tolerated by gravid women, and there is no apparent relationship between the intravenous administration of the drug and miscarriage or abortion.

4. Prenatal treatment modifies definitely the syphilitic changes in the placenta.

5. Regardless of the absence of clinical or serologic observations, it seems wise to treat babies born of mothers in whom the syphilis is early to supplement the prenatal treatment of the mother.

ABSTRACT OF DISCUSSION

Dr. Carroll S. Wright, Philadelphia: I have been struck during the past several years with the apparent decrease in congenital syphilis. For seven years I have had charge of the congenital syphilis clinic in the Philadelphia Graduate Hospital, and recently have had difficulty in obtaining sufficient cases with active manifestations for teaching demonstration. I have had only two cases with cutaneous lesions referred to me from the obstetric clinic of the same hospital, and am inclined to believe that there is a marked decrease in the number of such cases. I attribute this to two causes; first, the marked improvement in treatment; second, education of the public. I am strongly in favor of such campaigns as are being carried out now by the Metropolitan Life Insurance Company and other organizations. The advertisement of the insurance company emphasizes the importance of antenatal therapy in pregnancy complicated by syphilis. My interest being stimulated by Drs Wile and Shaw's forthcoming paper, I asked my secretary to get out for me all histories of patients with syphilis complicating pregnancy for three years back. By a curious coincidence I had 100 case records, a number paralleling Dr. Shaw's, showing nine stillbirths during that period. None of the patients had any treatment previous to the fifth month, which I believe represents the deadline of effective therapy. I was further interested in that we found about 60 per cent of positive cord Wassermann reactions, although I always have had some doubt as to the significance of the cord Wassermann test. I do not think the advantage of early therapy can be overlooked. As an example of what therapy can do, I will describe a case: A patient gave birth to a seven months' macerated fetus. Following this she was referred to our clinic and received one neoarsphenamine and four bismuth injections. She then disappeared and exactly nine months later came into the hospital and gave birth to a healthy, normal appearing infant. The cord Wassermann reaction was positive. I have followed that child for four years and have never seen any sign of syphilis. A minimal amount of therapy in this case changed the whole picture, although I realize the inadequacy of such therapy in most cases.

Dr. Charles C. Dennie, Kansas City, Mo.: I am much interested in the subject of prenatal treatment of syphilis. We have carried out this idea in the Kansas City General Hospital and in the University of Kansas for many years. I agree with Dr. Wright but go a little further and will say that in my opinion the fourth month of pregnancy is the deadline of effective therapy. This is the reason that, when autopsies are done on congenitally syphilitic children, the epiphyses of the bones is the one place where evidence of this disease is nearly always found. That is one landmark that pathologists look for. I think the involvement begins here as soon as the bones begin to form and therefore I think that, in order to be successful in the treatment of these cases and to prevent stigmas which later may occur, antisyphilitic treatment should be instituted before the fourth month of pregnancy. I believe that, if the treatment is instituted at the seventh or eighth month of pregnancy, in the course of events if the child was to have the stigmas of syphilis he would have this even though the blood was found to be negative and remained so for several years after birth. I think the treatment should be largely arsenical, for arsenic is the only thing that has an influence on the spirochetes involving the bones and joints. If treatment is started before the fourth month it is entirely possible to give fifteen or sixteen doses of arsphenamine and the hazard is very small in this type of treatment. It is true that a few doses of arsphenamine, even in the seventh or eighth month of pregnancy, will greatly cut down the number of stillbirths or prenatal deaths, but if a small amount of treatment is given to the mother it will be just enough to change the Wassermann reaction to a negative but not enough to eliminate the syphilis from the child, so that in three or four years the child may develop a positive Wassermann reaction or some manifestation of syphilis accompanied by a negative reaction. One often sees an infant with a negative Wassermann reaction at birth whose mother had a small amount of treatment before the birth of the child. I can call to mind three such cases; in all, there were enlarged bones and spleens. Institution of active treatment caused a great reduction in the size of these organs. There is no reason why an infant in utero should respond to indifferent treatment. The fact that a little treatment will produce a living child is an interesting observation but a dangerous procedure.

Dr. Joseph Earle Moore, Baltimore: I am inclined to think that it would be extremely wise for us as individuals who come in contact with pregnant syphilitic women to emphasize the observations to obstetricians rather than to ourselves. Our country, as compared with European countries, is backward in this way. In Denmark, where the use of the routine Wassermann reaction is much more prevalent, there are only about sixty children with congenital syphilis in the whole country of three and one-half million inhabitants. This seems strange but it shows what can be accomplished in the treatment of these women, when properly carried out. Dr. Williams of our obstetric department has been greatly interested in this subject and has been carrying out the Wassermann reaction on his patients for something like fifteen years. In spite of the fact that most obstetricians are thoroughly convinced of the value of routine Wassermann reactions for clinical patients, they are not yet convinced so far as patients in private practice are concerned. The average obstetrician feels that to carry out routine Wassermann reactions in private practice would be to insult his patients. In my small private practice I have forty examples of congenital syphilis among well-to-do families. I have been greatly interested in the effect of pregnancy on the suppression of the lesions of syphilis, and I note that the authors assume that 55 of their 100 patients had acquired syphilis at or about the time of conception. I wish to know whether this had any effect on the type of lesions the patients presented at the time of examination. The question of the deadline of therapy has been introduced into the discussion and I wish to take sharp issue with what has been said. I do not believe that the deadline is at the fourth or the fifth month. I think much can be accomplished by treatment given as late as the eighth or ninth month, and think it is never too late to treat the syphilitic woman. I wish to know what value is attached to positive cord Wassermann tests, and what influence this had on determining whether or not such patients should be treated for syphilis. I should also like to ask whether the statement that these children are well after five years is based on the absence of symptoms or a negative Wassermann test.

Dr. James R. McCord, Atlanta, Ga.: For several years I have had under observation from 1,500 to 2,000 pregnant women with syphilis. I have performed necropsies on more than 1,000 babies. I have paralleled this with a Levaditi stain of all the organs, have examined all the bones by the roentgen ray, and have done many dark field examinations. I believe that in the light of our present knowledge it is well to teach that congenital syphilis is always the result of syphilis in the mother. The time of infection of the mother has something to do with infection in the child. I am inclined to believe that syphilis is the cause of abortion. I have never found syphilis in a fetus that weighed less than 100 Gm. It is better to try to prevent the disease in the child than to cure the mother during pregnancy. I give the mother 0.45 Gm. of neoarsphenamine and a mercurial inunction weekly until the baby comes. I have treated many of these cases with only one fatality, and that was the result of error. I have reported several hundreds of these cases. A positive Wassermann test properly carried out is just as much a sign of syphilis in a pregnant as in a nonpregnant woman. A negative Wassermann reaction on the cord means nothing, but a positive reaction means syphilis. About 93 per cent of the cases with positive cord examinations without treatment end disastrously. Those cases in which more than six treatments were given ended disastrously in only nine instances. Treatment during pregnancy definitely influences the microscopic appearance of the placenta. I have found bone evidences of syphilis in 51 per cent of our autopsies. This is an osteochondritis; the periosteal type was found in only 2 per cent. The organisms of syphilis were found in 35 per cent of the autopsies. My last series reported of pregnancy with syphilis, without treatment, ended disastrously in 80 per cent; with less than six treatments, 34 per cent; with more than six treatments, 9 per cent.

Dr. David Lieberthal, Chicago: In thirty-five years of experience in treating prenatal syphilis I have relied mainly on mercurial inunctions. And here must be made a division of time in two periods: the one preceding the newest discoveries in the diagnosis and treatment of the disease, and the other since then. In dispensary practice, patients could not be followed up regularly. They were properly instructed how to carry out the treatment and to report regularly. In most instances they had to apply the rubs themselves. As was to be expected, only a certain percentage could or would follow the plan to the end; therefore, final results could not be recorded. In those, however, who did continue the treatment, the results were gratifying. In private practice, conditions were more favorable as the cooperation of the patients was more easily assured. The treatment of all these patients, dispensary as well as private ones, consisted in courses of inunctions with intervals of from two to three weeks until from six to eight weeks or less before termination of pregnancy. The inunctions were carried out by trained masseurs whenever possible. With the advent of the newest discoveries and with subsequent thorough organization of clinics with follow-up systems the management of prenatal cases at my clinic has been quite similar to that of Drs. Wile and Shaw, neoarsphenamine in small doses, 3 Gm. in all, followed by or in combination with inunctions as outlined. The same plan has been carried out in my private practice. I have watched the majority of private cases for all these years and followed up the second and third generation. Ultimate results have been very gratifying.

Dr. Joseph W. Shaw, Ann Arbor, Mich.: Dr. Wright stated that he has seen few cutaneous manifestations of syphilis in the new-born. In our series we had only one case. Regarding the treatment of the pregnant syphilitic woman, although this series received largely old arsphenamine intravenously and mercury in the form of the inunction, during the past year this clinic has used, for the most part, insoluble bismuth salts and old arsphenamine. The point that was brought out as to the deadline for treatment is interesting. We feel that treatment is efficacious up to the time of birth, and we attempt to institute treatment as soon as the disease is recognized and continue it right up to the ninth month, and even in those cases we have observed very few reactions. I think that, as Dr. Dennie said, if treatment is begun before the fourth or fifth month, the results may be expected to be better. We did not attach much significance to the cord blood. We feel that positive observations in the placenta are much more important criteria in the diagnosis of congenital syphilis. Regarding the infants we reported, apparently living and well from one to five years after birth, as stated, this report was made with the help of the social service department. We were unable to reexamine the majority of these youngsters after their discharge from the hospital and can not state definitely whether the blood was negative or positive. We can only present the reports of the social service workers in the various communities, namely, the number living and apparently well. The question as to whether it is necessary to treat these patients during every pregnancy has been considered and we feel that probably during the first several years of the disease treatment should be instituted during pregnancy. However, as the disease becomes older in the mother, each patient should present a therapeutic problem in itself, and no definite therapeutic standards can be laid down.

OBSERVATIONS OF A LARYNGOLOGIST *

R. C. LYNCH, M.D.
NEW ORLEANS

I practice otolaryngology. My observations are entirely clinical. Some of them may interest some of you: for instance, vocal nodules, either in young children or in adults, a retention cyst, and the earliest manifestation of cancer are the only tumors that grow from the free edge of the vocal cords. Fibroma, angioma and their combinations, pedunculated tumors of various types, all start on the under or the upper surface of the cord; this is also true of hemorrhagic blebs. Contact ulcers are the results of excessive abuse of the voice during acute inflammatory reaction. All other ulcers are of special etiology. A simple chronic ulcer never occurs in the larynx; its etiology must be sought for.

Single pedunculated papilloma in the child is different in its behavior from the multiple type; the prognosis is better. Dissection with the aid of suspension gives me the best results. The same tumor in the adult is practically always malignant; in my experience it should be thus regarded. Careful microscopic dissection or serial section has always shown at some part of the tumor mitotic figures with lawless cell proliferation.

I have made the mistake a number of times of believing the report on one microscopic section. Clinically I have been made to change my mind. The reports on a series of sections are more trustworthy.

Again, pedunculated papillomas of the tonsil soft palate are not the same clinically as those referred to and show no such tenacity as the multiple type; these two are different. Clinically, multiple papillomas presumably originate from the papillary layer of the mucous membrane; they will recur on scar tissue, they are autografting, they are contagious, and they are said to disappear spontaneously. I have never seen this, though the appearance of a crop on the back of the hand preceded a marked improvement in the larynx. No one remedy or technic yet suggested will cure all cases. I have tried every plan. My experience covers 203 cases. If reports as to recurrence were delayed, the results would in most instances not be so flattering.

My greatest surgical contradiction is a patient on whom I have operated ninety-six times for papilloma of the larynx. Some day I shall report his case in detail.

The earliest carcinoma of the larynx springs from the middle third of the vocal cord. Twenty-six cases are recorded, all verified by microscope. Twenty-five of the patients are well without recurrence from two to eighteen years after suspension and dissection. I have ninety-eight cases in which proliferation extended through the basilar membrane so as to make the cord lag but not fixed. Seventy per cent of the patients are well without recurrence, though lately one had cervical metastasis and died seven years after operation, and the other had intestinal metastasis after four and one-half years.

When the cord is fixed by the growth, only a laryngectomy is indicated; 152 laryngectomies have been done, with two deaths from heart block within ten days of operation. Sixty-two per cent of the patients are well without recurrence, which takes place usually within

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* Chairman's address, read before the Section on Laryngology, Otology and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

eighteen months. A patient who is well four years after a laryngectomy is, so far in my series, practically cured, though I believe one should be cautious in the use of this word as applied to cancer.

Eight cases of metastasis to the lung have been observed in truly intrinsic cases, all discovered by accident, four substantiated by autopsy. Routine roentgen examination of the chest must be done before operation. Two cases of coincident carcinoma of the esophagus, and one of the soft palate and tonsil and larynx, have also been observed.

Diathermy coagulation under suspension is of real value in properly selected cases; chloroform is used. I have yet no reason to change my gas, oxygen and ether anesthetic for this work, when diathermy or the cautery is not used.

All laryngectomies are done in one stage. Primary healing has risen to better than 12 per cent. Plastic operations for closure of the esophagus amount to 3 per cent. Caloric feeding through the esophageal tube is essential for maintenance of weight and resistance. About 50 per cent develop tonal voice. An artificial larynx is very practical.

Biopsy should be done only if operation is agreed to; under this plan, no evidence of harm thus far occurred.

Deficiencies in diet, allergic states, endocrine unbalance and low akinetic exposure form the etiologic quadrad of sinus disease in children; any one, any combination or all four may be the fault. Infection with pathologic change may exist even when the quadrad seems normal. Window resection for drainage and ventilation will not suffice in every instance, but persistence and patience must be practiced before radical procedures are proposed.

The same outline stands for adults, though here one is more likely to see only end-results of long continued etiologic factors. Teeth add another source. In adults with pan sinus disease demanding radical operation, the antrum should be attended to first. Preservation of the periosteum over the frontal plate, plus incision in the bone not above the orbital ridge is the best guard against osteomyelitis. My technic strictly adhered to still gives me the best results, and many other operators are duplicating these.

Malignant nasopharyngeal tumors are significant for lack of rhinologic symptoms. Pain in the face, trismus, tinnitus with stuffy progressive deafness and single or multiple cranial nerve involvement calls for most careful scrutiny.

Salivary calculus will resemble sarcoma or mixed tumor disease.

Diathermy will light up and produce progress toward increased deafness in otosclerosis.

Sinus thrombosis is comparatively rare, far south.

The inferior turbinate is an essential organ on the coast line, and especially far south. Any procedure that recommends its partial or complete removal will be followed by accumulations and changes resembling atrophy.

The wide nose of the Negro with its large turbinates will mislead the uninitiated. The greater the dilution with the white race, the less is the resistance. In Negroes the tissue reactions to inflammation are the same as observed in the white race. Skin incisions are likely to be followed by keloid scar.

Allergic reactions are scarce in real Negroes, who seem less sensitive. They make good patients.

632 Maison Blanche Building.

ADDITIONAL LIGHT ON THE DYSMENORRHEA PROBLEM *

NORMAN F. MILLER, M.D.
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IOWA CITY

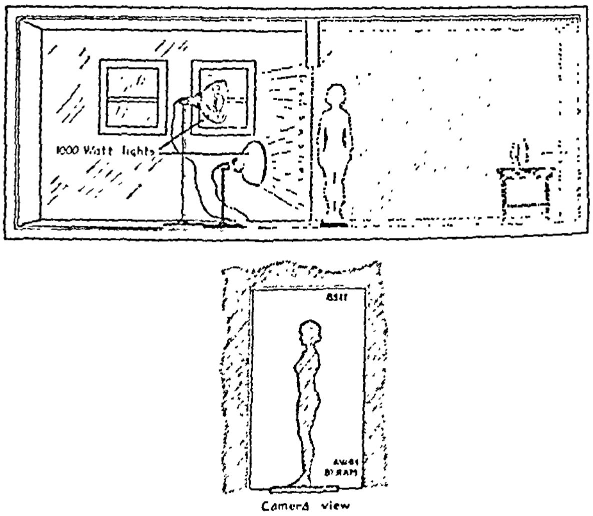

Fig. 1.—Method of obtaining silhouettes.

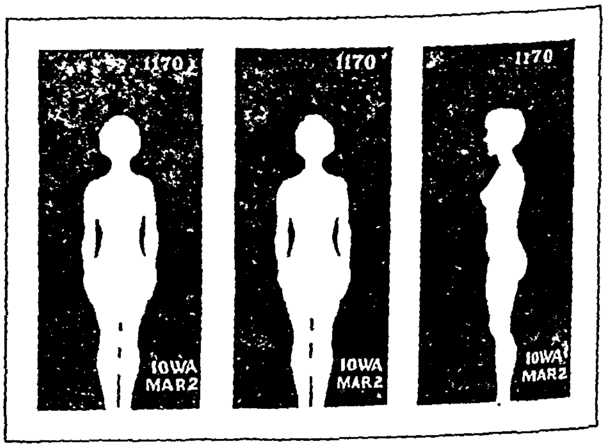

Fig. 2.—Appearance of silhouettes.

Discoveries and real contributions in modern medicine have not been numerous; yet a few, by their brilliance, have lent a happier color to many unsettled problems that physicians must face. Among the latter, dysmenorrhea must be included. Contributions covering the histology of menstruation,[1] and the elaborate studies on ovulation [2] and the female sex hormone,[3] have helped considerably in clearing away the haze surrounding this physiologic process. Yet in some respects dysmenorrhea remains as much of a riddle today as it was fifty years ago. The truth of this statement is well illus-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

[1] Hitschmann, F., and Adler, L.: Der Bau der Uterusschleimhaut des geschlechtsreifen Weibes mit besonderer Berücksichtigung der Menstruation, Monatschr. f. Geburtsh. u. Gynäk. 27: 1, 1908. Novak, Emil: Menstruation and Menstrual Disorders, J. A. M. A. 90: 339 (Feb. 4) 1928.

[2] Novak (footnote 1, second reference).

[3] Frank, R. T.: The Female Sex Hormone, Springfield, Ill., Charles C. Thomas, 1929.

trated by a comparison of earlier conditions with our own. Thus, in 1877, Jacobi[4] noted that 46 per cent of women complained of menstrual pain; and in 1927, fifty years later, in a study of 785 young college women and nurses, we found 47 per cent similarly afflicted. Of this number, however, only 17 per cent had pain sufficiently severe to require rest in bed or limitation of activity. Regardless of probable decrease in the incapacitating forms, the fact cannot be evaded that dysmenorrhea remains today an important economic and medical problem.

TABLE 1.—*Individuals Requiring Rest in Bed in a Series of 429 Cases of Dysmenorrhea*

Duration of Bed Rest	Number	Per Cent of Dysmenorrhea Cases	Per Cent of Total
Hours	83	19	10
Days	58	14	7
Total	141	33	17

On the whole, medical treatment of menstrual pain has been unsatisfactory. Temporary improvement is readily accomplished, but desirable permanent relief seldom rewards even the most diligent efforts along this line. From time to time those interested in physical education for women have reported apparent benefit associated with simultaneous improvement in posture. As a group, physicians have paid little attention to these reports, thinking possibly that it is simply another method of dodging the question.

Failing to achieve satisfactory results with available methods, and stimulated by the optimistic reports of those interested in the teaching of physical education in our universities and colleges, we determined to learn, if possible, the relationship existing between faulty body mechanics and common gynecologic complaints, especially dysmenorrhea. Using the girls of the entering classes at Wellesley College, the University of Iowa, and the Nurses Training School at the University of Iowa as subjects, we commenced the study in the fall of 1927. In all, 785 young women were available for study.

METHOD OF STUDY

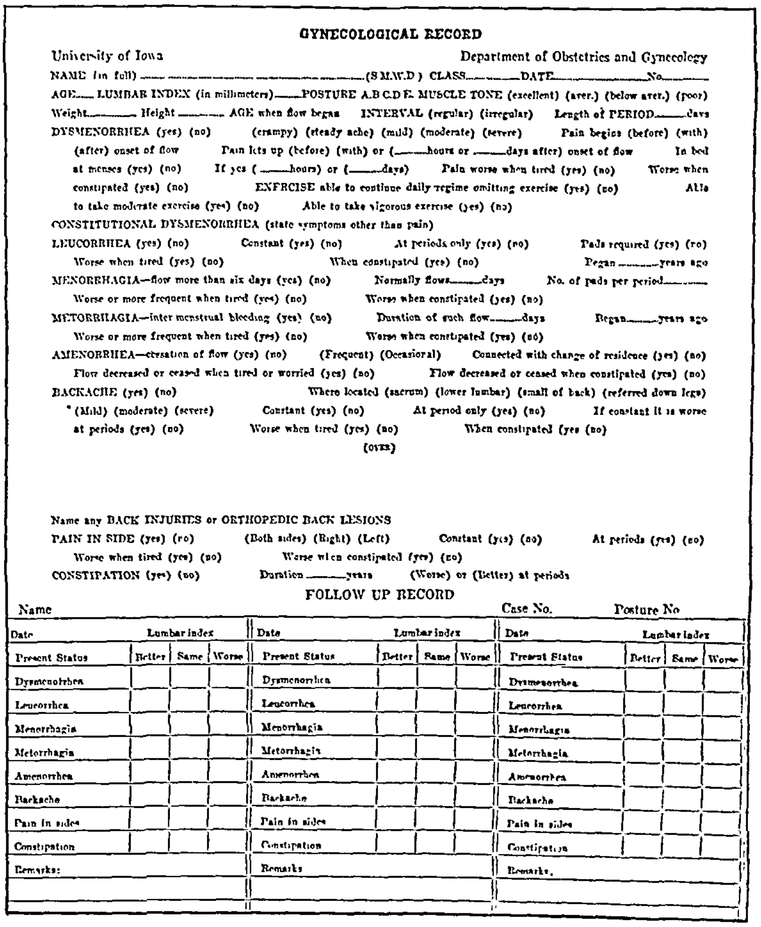
Each girl was subjected to the usual physical examination required for admission, and in addition was qualitatively classified as to posture and muscle tone. At Iowa, a permanent record of the lateral and anterior aspects of each individual was obtained in such a manner as to resemble the usual silhouette, but without the distortion associated with silhouettography.

TABLE 2.—*Ability to Take Exercise Among Patients Having Dysmenorrhea*

Type of Exercise	Number	Per Cent of Dysmenorrhea Cases	Per Cent of Total
No exercise	30	7	4 } 17
Mild	104	25	13 }
[illegible]	229	53	29
	61	14	8
	5		
Total	429		

The method is clearly illustrated in figures 1 and 2 and requires no explanation.

A similar method is used at Wellesley. Posture and muscle tone ratings were determined from study of the nude individual and shadow pictures, by more than one trained person well qualified in the work of objective grouping on a posture basis. All subjects were directly questioned concerning dysmenorrhea and the replies noted on cards specially prepared for this purpose (fig. 3). In noting the presence or absence of menstrual pain, the need for rest in bed and the limitation of activity at the period time, a triple check was obtained which also permitted classification of dysmenorrhea into groups, depending on the severity of the symptom.



GYNECOLOGICAL RECORD

University of Iowa Department of Obstetrics and Gynecology
NAME (in full) ________ (S M.W.D) CLASS____ DATE______ No.____
AGE___ LUMBAR INDEX (in millimeters)____ POSTURE A.B C.D E. MUSCLE TONE (excellent) (aver.) (below aver.) (poor)
Weight____ Height____ AGE when flow began INTERVAL (regular) (irregular) Length of PERIOD____days
DYSMENORRHEA (yes) (no) (crampy) (steady ache) (mild) (moderate) (severe) Pain begins (before) (with) (after) onset of flow Pain lets up (before) (with) or (____hours or ____days after) onset of flow In bed at menses (yes) (no) If yes (____hours) or (____days) Pain worse when tired (yes) (no) Worse when constipated (yes) (no) EXERCISE able to continue daily regime omitting exercise (yes) (no) Able to take moderate exercise (yes) (no) Able to take vigorous exercise (yes) (no)
CONSTITUTIONAL DYSMENORRHEA (state symptoms other than pain)
LEUCORRHEA (yes) (no) Constant (yes) (no) At periods only (yes) (no) Pads required (yes) (no) Worse when tired (yes) (no) When constipated (yes) (no) Began ____years ago
MENORRHAGIA—flow more than six days (yes) (no) Normally flows____days No. of pads per period____ Worse or more frequent when tired (yes) (no) Worse when constipated (yes) (no)
METORRHAGIA—inter menstrual bleeding (yes) (no) Duration of such flow____days Began____years ago Worse or more frequent when tired (yes) (no) Worse when constipated (yes) (no)
AMENORRHEA—cessation of flow (yes) (no) (Frequent) (Occasional) Connected with change of residence (yes) (no) Flow decreased or ceased when tired or worried (yes) (no) Flow decreased or ceased when constipated (yes) (no)
BACKACHE (yes) (no) Where located (sacrum) (lower lumbar) (small of back) (referred down legs) (Mild) (moderate) (severe) Constant (yes) (no) At period only (yes) (no) If constant it is worse at periods (yes) (no) Worse when tired (yes) (no) When constipated (yes (no)
(over)

Name any BACK INJURIES or ORTHOPEDIC BACK LESIONS
PAIN IN SIDE (yes) (no) (Both sides) (Right) (Left) Constant (yes) (no) At periods (yes) (no) Worse when tired (yes) (no) Worse when constipated (yes) (no)
CONSTIPATION (yes) (no) Duration ____years (Worse) or (Better) at periods

FOLLOW UP RECORD

Name Case No. Posture No

Date	Lumbar index			Date	Lumbar index			Date	Lumbar index		
Present Status	Better	Same	Worse	Present Status	Better	Same	Worse	Present Status	Better	Same	Worse
Dysmenorrhea				Dysmenorrhea				Dysmenorrhea			
Leucorrhea				Leucorrhea				Leucorrhea			
Menorrhagia				Menorrhagia				Menorrhagia			
Metorrhagia				Metorrhagia				Metorrhagia			
Amenorrhea				Amenorrhea				Amenorrhea			
Backache				Backache				Backache			
Pain in sides				Pain in sides				Pain in sides			
Constipation				Constipation				Constipation			
Remarks:				Remarks				Remarks.			

Fig. 3.—Questionnaire and follow-up record.

The questionnaire is self-explanatory and requires no comment.

Since the beginning of the study in 1927, check up examinations have been made in 1928, 1929 and 1930, by an examining staff which with few exceptions has remained intact since the beginning of the study. It was planned to incorporate the 1930 observations in this report, but difficulty and delay in collecting the data made this impossible. Although the number of cases dwindled to 495 in 1929, it is hoped that when the four year study is completed the number will be sufficient to permit satisfactory analysis.

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[4] Jacobi, Mary P.: The Question of Rest for Women During Menstruation, New York, C. P. Putnams' Sons, 1877.

OBJECTIONS TO METHOD

Throughout this work we have been conscious of certain definite objections to the method of study employed, none of which can readily be eliminated. The complete reliance on objective observation, and the noticeable lack of methods of precision form the principal drawbacks. While posture types are fairly well established and permit ready qualitative grouping, their corollary, muscle tone, is still only vaguely understood, and attempts at classification are unsatisfactory. Muscle tone is probably more fundamental than posture, but adequate definition and methods of measuring are conspicuous by their absence.

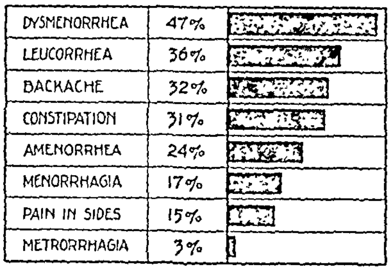


Fig. 4.—Incidence of gynecologic symptoms noted on original examination in 1927.

Lack of careful pelvic examination is another objection that has been eliminated in new studies recently commenced. Since most of the individuals in the present group are generally healthy young women, we have assumed the pelvic organs to be relatively normal.

Diet, climate, environment and glands of internal secretion may be mentioned as other factors deserving consideration. As we were aware of these drawbacks, every effort was made to minimize their importance, data being obtained by the best available methods with sufficient check to reduce the personal equation to a minimum. Even so, the observations here presented must be viewed in the light of possible relationship rather than proved facts.

Since the plan is to make this a four year study, no detailed discussion will be attempted at this time, the purpose being simply to present data covering the study to date, from which the reader, if he so desires, may draw his own conclusions.

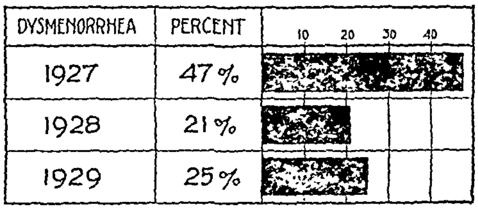


Fig. 5.—Incidence of dysmenorrhea.

RESULTS OF STUDY

The incidence of common gynecologic symptoms in this group at the time of original examination is shown in figure 4. Should final analysis warrant, the other symptoms will be considered at some future date.

The trend of dysmenorrhea for the years covered by this study is revealed in figure 5. The improvement noted includes completely relieved cases as well as those showing definite improvement since the first examination in 1927. Figure 6 indicates the general relationship between posture, muscle tone and menstrual pain. It will be noted that with the decrease in dysmenorrhea there has occurred a reduction in the poorer grades of posture and a simultaneous increase in the better grades. The ratings for muscle tone, while showing much the same relationship, appeared generally high at the original examination, probably because of inexperience in determining this factor. Whether these observations indicate possible cause and effect relationship can be determined only by consideration of the various groups.

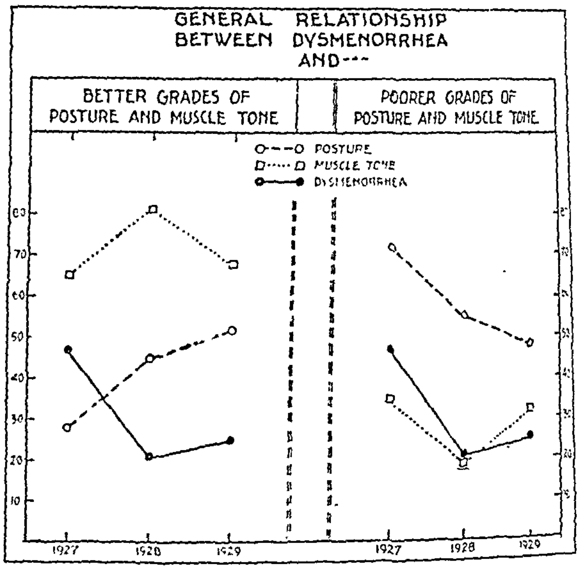


Fig. 6.—General relationship between dysmenorrhea and posture and muscle tone.

Completely Relieved Cases.—Of the 495 subjects with complete records for the years covered in this study, 237 had dysmenorrhea in some form at the time of the original examination in 1927, and of these 127 were completely relieved by 1929. Forty-eight, or 38 per cent, of this number originally had severe pain as indicated by the necessity for limited activity or rest in bed at the period time. The remaining seventy-two, or 62 per cent, had a mild type of dysmenorrhea.

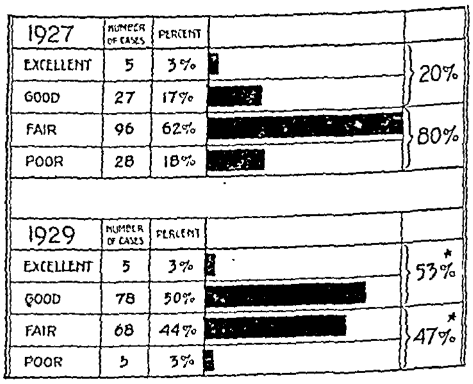


Fig. 7.—Posture in cases presenting dysmenorrhea in 1927 but none in 1929: an increase of 33 per cent in the better grades of posture and a decrease of 33 per cent in the poorer grades.

Greatly Relieved Cases.—Twenty-nine of the 237 dysmenorrhea cases were greatly improved at the end of the period under consideration, twenty-one, or 72 per cent, being severe and eight, or 28 per cent, mild in character.

The fact that 43 per cent of the relieved or improved group had severe dysmenorrhea originally is significant and should dispel any suspicion that only the milder cases were benefited. The relationship between posture and muscle tone in individuals showing complete relief or marked improvement is shown in figures 7 and 8.

Unimproved Cases.—Of the 237 cases of dysmenorrhea in 1927, 81, or 34 per cent, failed to show any improvement. Figures 9 and 10 reveal the posture and muscle tone grouping in these cases for 1927 and 1929. A gain in the better types of posture is noted in this group, whereas the muscle tone ratings reveal a slight decrease. In both posture and muscle tone, however, the poorer types predominate both at the time of the original examination and again in 1929. Interpretation of these observations is complicated by our lack of knowledge concerning the number with primary dysmenorrhea.

1927	NUMBER OF CASES	PERCENT		
EXCELLENT	48	31%		77%
GOOD	72	46%		
FAIR	31	20%		23%
POOR	5	3%		
1929	NUMBER OF CASES	PERCENT		
EXCELLENT	37	24%		70%
GOOD	72	46%		
FAIR	40	26%		30%
POOR	7	4%		

Fig. 8.—Muscle tone in cases presenting dysmenorrhea in 1927 but none in 1929.

Cases Without Dysmenorrhea.—Two hundred and fifteen individuals had no dysmenorrhea in the fall of 1927 or in 1929. The relationship between posture and muscle tone in this group is shown in figures 11 and 12. The increase in the better types of posture in this group may explain the absence of acquired dysmenorrhea but complicates the explanation on a basis of posture. Quite a different situation, however, is seen in the ratings of the muscle tone. In 1927 and 1929 over three fourths of this group without dysmenorrhea had desirable muscle tone, a finding that becomes even more significant when compared with the figures in the dysmenorrhea cases, and one which suggests that muscle tone, which after all is more fundamental than posture, may in some way be responsible for many instances of menstrual discomfort.

1927	NUMBER OF CASES	PERCENT		
EXCELLENT	5	6.2%		28.4%
GOOD	18	22.2%		
FAIR	35	43.2%		71.6%
POOR	23	28.4%		
1929	NUMBER OF CASES	PERCENT		
EXCELLENT	15	18%		44%
GOOD	21	26%		
FAIR	34	42%		56%
POOR	11	14%		

Fig. 9.—Posture in unimproved cases.

Acquired Dysmenorrhea.—Figures 13 and 14 indicate the posture and muscle tone groupings in the forty-three cases of acquired dysmenorrhea. Twelve of the forty-three subjects improved from undesirable to desirable posture, four changed in the reverse direction, seventeen continued the same, and the remainder varied only[5] within their respective groups. Seven changed from undesirable to desirable muscle tone, seven made the change in the reverse direction, seventeen remained the same, and the others made minor changes[5] within their respective groups. Interpretation of these observations is impossible since no information concerning acquired pelvic infection and general disease is available. On the other hand, it is worthy of note that the undesirable posture grades were in the majority both in 1927 and again in 1929.

1927	NUMBER OF CASES	PERCENT		
EXCELLENT	2	2%		42%
GOOD	32	40%		
FAIR	38	47%		58%
POOR	9	11%		
1929	NUMBER OF CASES	PERCENT		
EXCELLENT	4	5%		40%
GOOD	28	35%		
FAIR	47	58%		60%
POOR	2	2%		

Fig. 10.—Muscle tone in improved cases.

1927	NUMBER OF CASES	PERCENT		
EXCELLENT	11	5%		30%
GOOD	53	25%		
FAIR	112	52%		70%
POOR	39	18%		
1929	NUMBER OF CASES	PERCENT		
EXCELLENT	8	4%		57%
GOOD	114	53%		
FAIR	84	39%		43%
POOR	9	4%		

Fig. 11.—Posture in cases not presenting dysmenorrhea.

RELATIONSHIP BETWEEN FAULTY BODY MECHANICS AND DYSMENORRHEA

While it cannot be said that faulty posture or poor muscle tone causes dysmenorrhea, our study reveals a decrease in the occurrence of dysmenorrhea coincident with improvement in posture and muscle tone. This improvement occurred during a time when the method of living could scarcely be considered conducive to restfulness and quiet. Indeed the long, irregular hours, the strain of study and examination, would seem quite enough to increase any neurotic tendencies present in these individuals. During this time the only remedial measure was the course in physical training and corrective exercises. Explanation of this possible causative relationship is better understood by preliminary consideration of certain related facts.

It is conceded that the tone of the skeletal muscles serves as a good index to the tone of the circulatory system, and consequently individuals with poor skeletal muscle tone may be said to have poor tone of their circulatory systems. The significance of this becomes evident when it is recalled that the pelvic organs are abundantly supplied with blood vessels, the veins forming an extensive interlacing network through anastomoses between the pampiniform, uterine, cervical, vaginal, bladder and hemorrhoidal plexuses. These veins are characteristically thin walled and except for those of the uterus receive their chief external support from intra-abdominal pressure (figures 15 and 16). They are also distinctive in that they and the large veins into which they empty do not have valves as do the veins of the legs. In the quadruped these points are of little significance, while in the biped or human being they may be important in the explanation of certain pelvic symptoms. Roughly, the total blood volume of the body may be divided into quarters, one quarter being in the peripheral circulation, one quarter in the heart and lungs, and the remaining half in the portal circulation and other abdominal organs. In the quadruped most of the blood volume is near the heart level and consequently no excessive strain is placed on the vascular system (fig. 17). In the biped, or human being, however, most of the blood is below the heart level and the circulatory system is subjected to considerable strain. So long as the muscular tone of the body is good, no untoward effects are noticed; but with the loss of tone, distressing symptoms may arise. Because of their location in the most dependent portion of the peritoneal cavity and because of the presence of numerous interlacing thin walled valveless veins, the generative organs are particularly susceptible to conditions causing congestion. Doubtless the frequent occurrence of varicose veins in human beings and their scarcity in quadrupeds is a clinical manifestation of this relationship.

1927	Number of Cases	Percent	
Excellent	71	33%	79%
Good	98	46%	
Fair	35	16%	21%
Poor	11	5%	

1929	Number of Cases	Percent	
Excellent	62	29%	77%
Good	103	48%	
Fair	45	21%	23%
Poor	5	2%	

Fig. 12.—Muscle tone in cases not presenting dysmenorrhea.

1927	Number of Cases	Percent	
Excellent	1	2.3%	25.5%
Good	10	23.2%	
Fair	22	51.1%	74.3%
Poor	10	23.2%	

1929	Number of Cases	Percent	
Excellent	1	2%	39%
Good	16	37%	
Fair	21	49%	61%
Poor	5	12%	

Fig. 13.—Posture in cases of acquired dysmenorrhea.

1927	Number of Cases	Percent	
Excellent	5	12%	65%
Good	23	53%	
Fair	11	26%	35%
Poor	4	9%	

1929	Number of Cases	Percent	
Excellent	9	21%	67%
Good	20	46%	
Fair	12	28%	33%
Poor	2	5%	

Fig. 14.—Muscle tone in cases of acquired dysmenorrhea.

The physiologic changes occurring at the time of the normal menstrual period must also be considered. The first or premenstrual stage lasts from seven to ten days and is characterized chiefly by congestion of the pelvic organs. When the hyperemia of the uterine mucosa reaches the breaking point, hemorrhage occurs into the surrounding tissues by rhexis and diapedesis. This inaugurates the second or desquamative stage, characterized by loss of the surface epithelium from the uterine cavity and the onset of the menstrual flow. Normally this stage is thought to last about two days, following which the third or regenerative stage begins, when regeneration or rebuilding of the endometrial glands takes place and is generally complete in four days. The resting interval follows and lasts from ten to fourteen days, when the next premenstrual stage appears.

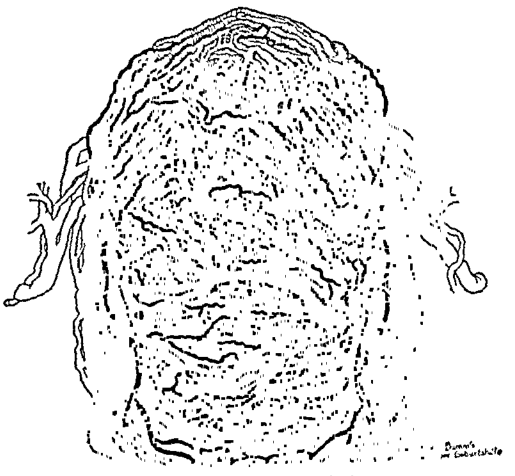


Fig. 15.—Vascular network of the uterus.

If lack of muscle tone plays a part in causing dysmenorrhea, one might justly expect the discomfort to begin before or with the onset of the menstrual flow and to cease as soon as the congestion subsides or the pelvic organs are depleted. In the majority of cases this is exactly what happens (table 3 and fig. 18). Apparently the superimposing of the physiologic congestion of menstruation on the already congested pelvic organs is more than the structures can comfortably tolerate, and the dull steady pain characteristic of congestion is the result.

Those who favor neuroses as a basis for dysmenorrhea must explain the paradoxic improvement under circumstances that tend to increase neurotic tendencies. The situation, however, permits of a satisfactory explanation on the basis of faulty muscle tone, for it is well known that high strung or nervous individuals have better tone than do the phlegmatic type.

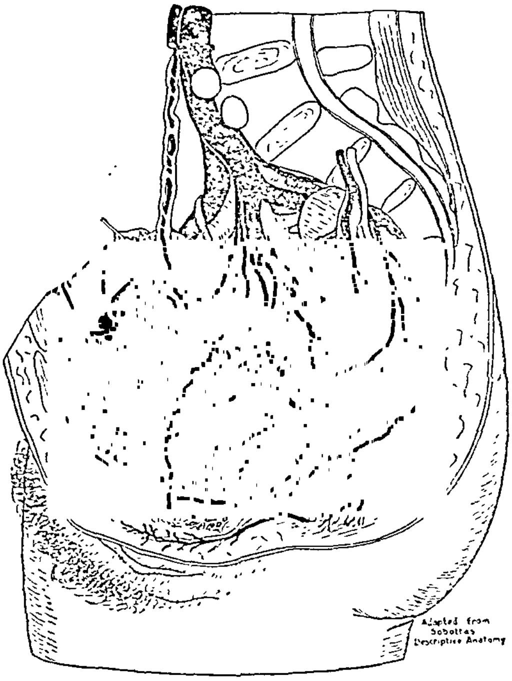

Adapted from Sobotta's Descriptive Anatomy

Fig. 16.—Anastomosis of vascular plexuses in the pelvis.

Additional evidence favoring the muscle tone theory is to be found in studies of parous women, in whom the average posture and muscle tone is generally low. In a review of 200 multiparas without evidence of infection, all of whom had had two or more children, it was found that 44 per cent had dysmenorrhea. In most cases this was of the congestive type, the pain beginning before or with the flow and disappearing within the first day after the onset. Since primary dysmenorrhea may be excluded in parous women, it appears that the incidence of the secondary types is actually higher than among the young women forming the basis of this study, where the primary type could not be eliminated.

Table 3.—*Duration of Pain in Dysmenorrhea as Determined By Study of One Thousand Painful Periods*

Day Pain Lets Up	Cases	Per Cent
First day	500	50 } 80
Second day	295	30 }
	135	13
	46	5
	18	2
Sixth day	6	

SUMMARY

It may be well to repeat that while it is not justifiable to conclude that faulty posture and poor muscle tone cause dysmenorrhea, a reduction in menstrual pain has occurred along with a decrease in imperfect posture and poor muscle tone as a result of directed physical exercise. Moreover, this occurred during a period when the living regimen could scarcely be considered quieting or conducive to restfulness, and, finally, when the only actively and knowingly applied remedial measure was the required course in physical education and corrective exercises. In the face of these observations, it would seem that the reduction in dysmenorrhea associated with improvement in body mechanics is more than mere coincidence.

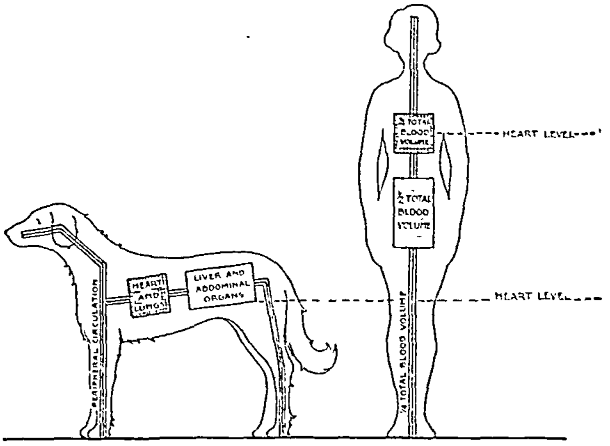
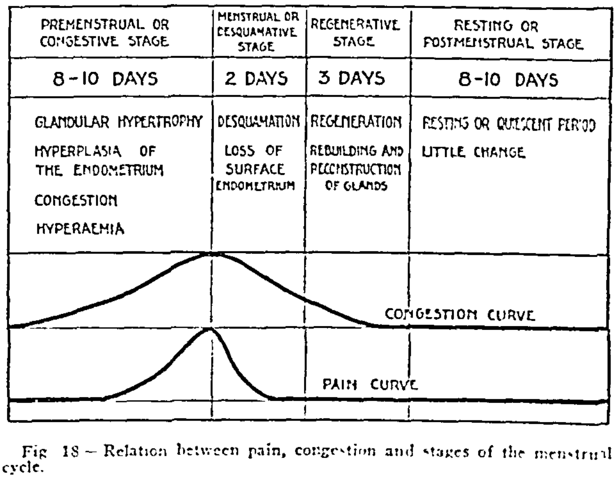


Fig. 17.—Comparison of quadruped and biped, showing distribution of blood volume: one fourth in the peripheral circulation, one fourth in the heart and lungs, and the remaining half in the portal circulation and abdominal and pelvic organs.

We hope with the completion of this study to have sufficient data to permit definite conclusions either for or against the existence of a causative relationship between menstrual discomfort and posture or more fundamental muscle tone.



PREMENSTRUAL OR CONGESTIVE STAGE	MENSTRUAL OR DESQUAMATIVE STAGE	REGENERATIVE STAGE	RESTING OR POSTMENSTRUAL STAGE
8-10 DAYS	2 DAYS	3 DAYS	8-10 DAYS
GLANDULAR HYPERTROPHY HYPERPLASIA OF THE ENDOMETRIUM CONGESTION HYPERAEMIA	DESQUAMATION LOSS OF SURFACE ENDOMETRIUM	REGENERATION REBUILDING AND RECONSTRUCTION OF GLANDS	RESTING OR QUIESCENT PERIOD LITTLE CHANGE

Fig 18.—Relation between pain, congestion and stages of the menstrual cycle.

ABSTRACT OF DISCUSSION

Dr George A. Kamperman, Detroit: The dysmenorrhea problem from the etiologic standpoint is one of the old unsolved problems The therapy still remains for solution. For this reason all investigation is worthy, because dysmenorrhea is a big economic problem. Many causes have been ascribed. The causes discussed by Dr. Miller are some of the causes of dysmenorrhea. Posture and muscle tone condition may be definite factors, although I do not believe that Dr. Miller intends to convey the impression that they would constitute the sole cause. All physicians are acquainted with the young woman who had dysmenorrhea in early life and who after pregnancy and the birth of a child was completely relieved of her dysmenorrhea. These patients have been seen so often that I am sure the picture is familiar. One would feel that in these cases the improvement of the dysmenorrhea could hardly be attributed to improved muscle tone or to any improvement in postural attitude. One might sincerely ask: What are the underlying causes of improvement in these cases that Dr. Miller has reported? He has studied dysmenorrhea in college girls and found that in two years' time they were greatly relieved. I believe the fact must not be forgotten that a great many girls, as they become somewhat older, oftentimes are relieved of dysmenorrhea; often that occurs just about at the age when girls go to college; when they get to the end of their teens and into the early twenties. Then dysmenorrhea often improves somewhat for some unknown reason. Dr. Miller makes a premise about which I am a little bit doubtful. He speaks of the improvement in the college girl and mentions the fact that she improves while she is undergoing the strain of college life and at a time when one might assume that neuroses would be particularly likely to cause dysmenorrhea. I am wondering how correct that premise is. It seems to me that one has to individualize a great deal in these girls. I can picture a great many girls who go to college, who for the first time in their lives are leading a regular, healthy life; girls who have been in homes where there has been no supervision, no discipline, no regularity, and who when they go to college probably for the first time in their lives are leading routine, normal lives. I can't help feeling that probably the routine life that these girls are leading may be some factor in relief of some of the dysmenorrhea.

Dr. Thaddeus L. Montgomery, Philadelphia: Either dysmenorrhea has become less frequent or physicians have abandoned efforts to discover the secret of its origin. It is held that painful menstruation is of two types: the spasmodic or essential and the congestive or acquired. The pain in the former case is usually more debilitating. The presence of a neurotic state of mind in most patients suffering with essential dysmenorrhea has been observed so universally that one familiar with a family's history and traits can usually prognosticate the occurrence of dysmenorhea in its younger generation of females. Sufficient evidence has accumulated from the reports of competent observers to indicate that the essential type of menstrual pain is frequently associated with a characteristic anatomic condition of the uterus; namely, a subdevelopment which may or may not be accompanied by anteflexion or retroflexion. Many of the sufferers from primary dysmenorrhea display systemic evidence of endocrine disturbance. Factors that act as a stimulus to endocrine development, e. g., marriage and pregnancy, frequently cure the disease. The congestive type of dysmenorrhea is a disturbance clearly secondary to such conditions as pathologic retroversion, fibroids of the uterus, pelvic inflammatory disease, and tumor of the ovary. It is generally conceded that the diagnosis of the cause in the individual patient is an intricate problem requiring searching study of both history and anatomic conditions. Can these rather positive points be alined with the studies presented by Dr. Miller? At the onset one misses the complete and detailed study of the individual case. The nature of the material studied makes such an examination difficult to a prohibitive point. Nevertheless, the absence of certain details of examination, the impossibility therefore of ruling out other influential factors, makes it impossible to accept unreservedly the importance of posture and muscle tone.

Judging from Dr. Miller's explanation of the effect of muscle tone on pelvic circulation, one would expect greater improvement in the congestive group. Measures designed to improve the mental and physical hygiene of young women should be furthered by the medical profession. Such measures impress girls with the attractiveness of vigorous young womanhood and promote a healthier attitude of mind toward bodily functions.

Dr. Emil Novak, Baltimore: It is probable that in the aggregate the amount of disability and pain produced by so-called primary dysmenorrhea is greater than that produced by any other type of pelvic lesion, and yet the study of the problem has been much neglected. I am willing to accept the view advanced by Dr. Miller that the improvement of the muscle tone in these cases and the improvement in dysmenorrhea are more or less parallel; in other words, that the muscle tone may be taken as a sort of index of the patient's menstrual pain response. On the other hand, I would be inclined to question the view that the muscle atony is the direct cause of the dysmenorrhea, for the reason that the factor of muscle tone is only one of many constitutional factors that may be concerned. Women with faulty posture and poor muscle tone are, generally speaking, women who are constitutionally deficient, as in the case of thin, anemic and asthenic girls, in whom primary dysmenorrhea is very common. I have repeatedly seen cases of severe dysmenorrhea improved or cured without any local treatment whatever, simply by improving the patient's general condition through measures of general hygiene, such as fresh air, exercise and the avoidance of overwork and worry. Normally, women suffer no pain at menstruation, although some may have a slight sensation of heaviness in the lower part of the abdomen. But if the nervous system is made hypersensitive and the threshold of pain lowered, a mere discomfort can be readily magnified into an actual pain. An analogy is seen in the mechanism of pain through toxic causes. A woman who is well can move around in bed with no pain, but if she is suffering with a severe tonsillitis, for example, with a high fever and much toxemia, every move in bed is associated with severe pain. I would hesitate somewhat in accepting Dr. Miller's statement that parous women frequently suffer with dysmenorrhea because of poor muscle tone.

Dr. J. C. Litzenberg, Minneapolis: I once wrote a paper on dysmenorrhea, touching only one phase of painful menstruation; namely, the spasmodic type. That was a paper on the use of the antispasmodics in dysmenorrhea. I found that benzyl benzoate or other drugs of the benzyl ester group would relieve dysmenorrhea of the spastic type, which is a very small proportion of the dysmenorrheas. I found to my surprise, however, that more young women were relieved by physical exercise than by antispasmodics. For the purposes of my investigation I selected a type of highly intelligent women; namely, university girls, the nurses in the university hospital, and in two affiliated hospitals. My attention was attracted to the fact, when I went to the directress of physical education for women at the University of Minnesota, that when she got out her list of young women who had dysmenorrhea in their original histories when they entered the university there were only a few women who still had severe dysmenorrhea requiring treatment, after only a few months of gymnasium work. She was convinced that the physical exercise which the freshman girls were required to take was a factor in the small number of women who still had dysmenorrhea. I found the same thing when I went to the University Hospital. The superintendent of nurses found from her records that the girls who reported that they had dysmenorrhea on entrance had been cured by the work, or at least did not have dysmenorrhea sufficient to require absence from duty. The same thing happened in all the other training schools. I learned from my investigation of the use of antispasmodics that the antispasmodic will spectacularly cure the spastic type of dysmenorrhea; but that is a small part of the group. Ever since then my first prescription for a woman with dysmenorrhea is physical exercise. When women bring their daughters to me for dysmenorrhea, I take the thorough history which Dr. Montgomery has mentioned and have a complete general physical examination, in addition to the gynecologic, made. It is most important to determine the type of dysmenorrhea if possible. Before giving any medication I prescribe certain types of physical exercise.

Dr. Norman F. Miller, Iowa City: I was interested in what Dr. Litzenberg said about his patients getting well. We have a group who are majoring in physical education, and we have succeeded in getting many of these with dysmenorrhea to take physical exercise at the time of their menstrual periods and, surprisingly enough, many of them have been relieved of their discomfort. I was also of the opinion that the parous women did not have dysmenorrhea until I studied a group of 200 cases. The individual who is relieved of her dysmenorrhea following confinement is often the type who had a small anteflexed uterus originally, associated with other evidence of underdevelopment. If this presentation has stimulated the interest of physicians in dysmenorrhea, it has accomplished its purpose. I think that one thing will have to be granted: that physicians are not particularly successful in the treatment of dysmenorrhea. I am convinced that those interested in physical education can do more for dysmenorrhea than we can.

A SIGN DIFFERENTIATING ABDOMINAL PAIN OF PARIETAL FROM INTRA-ABDOMINAL ORIGIN

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Acute or chronic abdominal pain and tenderness of referred origin, from spinal or sacro-iliac strain, often so closely simulates that due to intra-abdominal disorder that the differentiation taxes the skill of the diagnostician.

Orthopedists have for years called attention to this association of abdominal pain arising reflexly from spinal and sacro-iliac lesions.

A thorough investigation of the subject by Carnett[1] in the past few years has not only accentuated this knowledge but definitely shown the relationship between certain types of abdominal pain and tenderness, clearly the result of skin hyperesthesia, due to nerve transmission from the abdominal parietes, explaining many operative failures in correcting abdominal pain of long standing. He has also devised several important tests that are helpful in differentiating abdominal pain reflexly of parietal origin.

Recently a helpful test devised by Wachs, of vaginal palpation for sacro-iliac strain, has been added to the list.

Two years ago, during the course of an examination of a patient with acute right lower abdominal pain and tenderness, I observed, when the patient was placed on her right side, that pain and tenderness entirely disappeared on palpation and that she was markedly tender over the right lumbosacral and sacro-iliac joints. The abdominal pain, however, returned when the patient was again placed on her back and markedly aggravated when lying on her left side. Strapping the sacro-iliac joints with large strips of adhesive plaster brought immediate relief from the abdominal pain. The patient was afebrile. The physical examination otherwise revealed no gross abnormalities. Functionally, aside from moderate intestinal stasis, the history was entirely negative. Blood studies revealed no leukocytosis nor any other cytologic, serologic or chemical abnormalities. Gynecologic and kidney function tests were normal. Gastro-intestinal studies, including a roentgenogram, revealed no abnormalities. Roentgen examination of the two sacro-iliac regions and the lower part of the spine revealed a mild bilateral arthritis, more pronounced on the right than on the left side. Following marked relief from pain, after strapping, a well fitting sacro-abdominal support continued to give the patient complete comfort without recurrence of the pain.

All patients admitted to my service at the Mount Sinai Hospital and at my office, complaining of lower abdominal pain, were subjected to the test and invariably it has proved reliable in differentiating pain of intra-abdominal origin from that due to parietal lesions.

It was consistently found that abdominal pain of intra-abdominal origin is not relieved when the patient is turned on one side or the other, but even markedly aggravated. In patients observed with abdominal pain due to bilateral sacro-iliac strain, relief from pain was always obtained on the side on which the patient rested. When patients suffered not only from sacro-iliac strain but also from intra-abdominal conditions there was no relief from pain on change of posture.

The technic of obtaining the sign is simple. The test is performed as follows: With the patient lying on her back, palpation of the abdomen establishes the area of maximum pain and tenderness. Without taking the palpating fingers from this area, the examiner turns the patient on the same side so that the pelvis rests on the iliac crest (it is well not to have the mattress too soft). Even deeper palpation over the same area will elicit little or no discomfort if the pain is referred from the sacro-iliac or lumbosacral joints of the same side. Turning the patient on the opposite side will usually aggravate the pain. The patient is then placed on the abdomen and the sacro-iliac joints are palpated. Invariably tenderness is elicited, sometimes over the entire area of the joints or a portion of it. Sometimes the tender point is sharply localized so that one must carefully and patiently press over the entire area of the joints in order to establish the local tenderness. It is often necessary to use very firm pressure to elicit this tenderness. It is sometimes spotlike.

An explanation of the relief from abdominal tenderness and pain, when the patient lies on the same side, is probably due to temporary immobilization of the joints affected, with lessened skin hyperesthesia due to reflex nerve transmission.

It is noteworthy that many of these patients have no subjective complaints of parietal pain, because of the absence of marked inflammatory phenomena in the joints affected.

In my many observations in the past two years it has been interesting to note how frequently abdominal pain of referred origin from the parietes is encountered without any subjective symptoms referable to the joints affected.

REPORT OF CASES

L. B., a woman, aged 31, was admitted to the Mount Sinai Hospital, July 6, 1929, complaining of pain in the left side of the abdomen, radiating down to the inguinal region, accompanied by occasional vomiting, of chronic and recurrent standing, for which an appendectomy had been previously performed, without relief.

On physical examination the pain and tenderness over the left side of the abdomen was relieved as long as the patient rested on the left iliac crest. When the left sacro-iliac joint and the hips were palpated, the entire area was extremely tender, although the patient did not subjectively complain of pain in this region.

Gynecologic and urologic studies, including pyelography, were entirely negative. Gastro-intestinal studies, including roentgenography, were entirely negative.

Orthopedic and roentgen examination confirmed the diagnosis of a lumbosacral strain and intercostal neuralgia due to arthritis, and relief was obtained by measures directed toward overcoming the parietal lesions.

A second instance in which a slight intra-abdominal abnormality was credited with abdominal pain and tenderness is as follows:

A. W., a woman, aged 30, was admitted to Mount Sinai Hospital, Dec. 2, 1929, complaining of pain in the right lower quadrant, of several years' duration, at times markedly aggravated and incapacitating the patient.

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[1] Carnett, J. B.: Ann. Surg. **85**: 509 (April) 1927, Am. J. M. Sc. **174**: 579 (Nov.), 833 (Dec.) 1927.

On previous study at Mount Sinai Hospital, a right ureteral kink was blamed for her symptom complex, which also included indefinite gastro-intestinal symptoms, such as belching, pyrosis and headache. During the previous two years, treatment directed toward the alleviation of the ureteral kink brought no relief from the abdominal pain.

On her present readmission I found that the right lower abdominal pain was immediately relieved when she was placed on her right side and predicted, before the parietes were examined, that she probably had a lumbosacral or sacro-iliac strain on the same side. This proved to be so, to a marked degree. When a cast was applied, the patient obtained complete relief from her symptom complex for the first time in several years and has had no complaint since.

COMMENT

The ureteral kink in this patient, if present, is not responsible for her former symptoms. It might have been artificially produced during the pyelographic studies, as was pointed out by Thompson and Bumpus.[2]

It is needless to emphasize that, in patients with abdominal pain, intra-abdominal lesions should be ruled out before the parietal origin of the pain is definitely established as the only cause; it is hoped that this sign will be helpful in such differentiation.

2006 Spruce Street.

ATYPICALLY SITUATED SARCOMA OF THE CONJUNCTIVA

REPORT OF A CASE *

HOWARD McILVAIN MORTON, M.D.
MINNEAPOLIS

Melanotic sarcoma of the conjunctiva, since the first case reported by Baumgarten[1] in 1852, has been described in the literature of ophthalmology and cannot now be considered a clinical rarity, although Roemer[2] states that "sarcoma of the conjunctiva is a very rare disease." However, the clinical expressions in the case to be reported are somewhat different from those usually found in this form of malignancy attacking the conjunctiva. For this reason, as well as to add another case of conjunctival sarcoma to the limited literature on this disease, the following case is presented.

REPORT OF CASE

History and Description.—W. E. B., a white man, aged 37, married, and with a healthy family, presented himself for examination, Feb. 17, 1930, because of a growth on the eyeball of three years' duration. The patient was 5 feet 9 inches (175 cm.) in height, weighed 160 pounds (72.6 Kg.), and was in normal general health. Cardiovascular conditions were normal; blood tests showed no constitutional disease. Several brothers and sisters, as well as the parents, were in normal health. There was no family history bearing on the condition—it was negative in all regards. The patient had never been sick. He was a healthy and strong farmer, and of a high degree of intelligence. He had reddish hair and a florid complexion. There was no pigmentation on the body. There was also no pigmentation (excepting the growth) either on the conjunctiva or on the lids. The fundi were normal and had a normal degree of pigmentation. There was no accentuation of the choroidal ring in either eye.

The patient gave a negative history, except that about fifteen years before he had had some metal filings blow into his right eye. This incident was evidently not related to the present condition, since the injury was nothing more than a slight irritation that passed away in a few days, the material being removed immediately and without trouble. This occurred about 1915, and there were no further disturbances of the eye until twelve years afterward, or about three years before I saw the patient. At that time, while threshing, he noticed that his right eye was sensitive to the dust, and that it bothered him more than did the left. He was not sure that he had gotten anything in the eye. Thus, aside from this vague and indefinite observation, the history was negative.

About three years before the patient came for examination he observed a small brown spot in the conjunctiva of the right eye, and about 4 or 5 mm. from the edge of the cornea. This remained unchanged in character until about eighteen months before. Since that time there had been a rapid advance in the outlines of the spot, until at present there was a large brown, or black, growth situated in the conjunctiva, to the outer side of the cornea. It apparently consisted of two connected portions, the one medially situated being blackish brown and about 7 mm. long and 3 mm. wide. The other segment, nearer the canthus, was an almost globular-looking mass, about 7 or 8 mm. in diameter. The surface of the tumor was smooth but with nodulations that were not small but consisted rather of three or four lumpy areas. Its thickness varied from 2 to 6 mm., there being an almost conical apex at its thickest part. The growth was freely movable in the conjunctiva over the sclera and was apparently confined to the conjunctiva. The nearest approach to the corneal limbus (fig. 1) was 5 or 6 mm.; there was no pigmentation elsewhere on the eyeball. While there seemed to be no pigmentation involvement about the limbus, there was a distinct, clear, flat, nonpigmented and colloid-like elevation between the edge of the tumor and the limbus of the cornea. The growth was gradually thicker and wider as it approached the outer canthus, and was also less freely movable about these areas. It had zones of vascular fringe passing out into the conjunctiva. The anterior ciliary vessels at the inner canthus were much engorged and were distinctly bluish. There was much new vessel formation, which radiated upward and downward, but this did not extend beyond the beginning of the tumor. There were no noticeable vessels on the tumor itself, except at its thicker (base) attachment to the tissues at the outer canthus. It spread out thicker at the base and narrowed almost to a blunt point in the direction of the cornea.

The ocular excursions were normal and the size of the pupils was normal, although there was a little irregularity of the left pupil (the noninvolved eye) at about 4 o'clock. Pupillary reactions, both direct and consensual, were normal. The color of the irises was gray, and the pupil was slightly miotic. The cornea in each eye was slightly below the average in diameter, being about 11 mm. In the iris of the right eye were a few brownish radiations of pigment, and in the iris of the left eye were considerable irregular pigment deposits, between 3 and 6 o'clock. Vision in the right eye was 6/6; in the left, 6/5. The growth was brownish, or almost entirely black, and, as already stated, contained a few nodular elevations and depressions. The patient did not complain of subjective symptoms, except that the eyes tired on reading. He had never worn glasses and had never had pain or attacks of inflammation in the eyes. There was no family history of tumor growth. The ophthalmoscope showed clear media and normal disks, with normal vessels, and, while the fundi were somewhat rough, there were no definite lesions. The conditions in the left eye were the same. The visual fields were normal in their peripheral extent, as were the central fields.

Microscopic Report.—The specimen was examined by Dr. E. T. Bell, professor of pathology at the University of Minnesota, who reported as follows: Microscopic sections of the tumor showed closely packed cells with an irregular alveolar arrangement. The cytoplasm was abundant and no distinct cell boundaries were visible. Many of the cells contained granules of melanin pigment. Numerous mitoses were seen. The microscopic structure afforded convincing evidence that the tumor was a melanosarcoma (fig. 2).

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[2] Thompson, G. J., and Bumpus, H. C.: *Ureteral Kinks: How They Occur at the Order "Take a Deep Breath and Hold It,"* J. A. M. A. **94:** 771 (March 15) 1930.

* Read before the Section on Ophthalmology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Baumgarten: Arch. f. Heilk. **16,** 1852.

[2] Roemer: Textbook of Ophthalmology, New York, Rebman Company, p. 94.

TREATMENT AND AFTER-TREATMENT

In the light of general experience, perhaps quite well represented in the report of Verhoeff and Loring[3] that 80 per cent of epibulbar sarcomas recur, both treatment and after-treatment in these cases seems to be almost, or entirely, futile. These writers express the opinion that the growth is highly malignant and with a tendency to recur and to form metastasis—the almost universal experience. Roemer, however, states that metastases from sarcoma of the conjunctiva are infrequent. In an accumulated series of fifty-three cases of epibulbar conjunctival sarcoma (Verhoeff and Loring), thirty-six recurred, and metastasis occurred in eight. It is to be assumed that there were many more recurrences and metastases, since some of the subsequent histories of this total number were not available. It has been my experience that metastasis from intra-ocular sarcoma occurs within two or three years, but statistics show that recurrence may not take place and metastasis may not appear for many years—ten or more. Therefore, opinion as to the final result must be withheld for a long time. The experience of all, however, is not so unfavorable. F. E. Burch[4] states:

> I have seen three of these cases in recent years and all have behaved well after removal. The first was removed elsewhere, had a recurrence, and we treated it entirely with x-ray therapy. There has been no recurrence after seven years. The second was treated by fulguration after a biopsy. The third was treated by diathermy fulguration extending well onto the cornea and rather deeply into the sclera. Neither of these fulguration treated cases have recurred. None of my three cases were nearly as large as yours, nor so loosely attached to the sclera and conjunctiva as this one. All were diagnosed as melanotic epitheliomas (one was sarcoma). All have retained the eyeball to date, and so far as I know, none have recurred. In the last two cases they were followed up with radium locally, which, I think, is the most valuable aid in prevention of recurrence.

Recurrence being so imminent and metastasis so frequent, it would appear that the generally expressed opinion that enucleation be immediately carried out is the proper course. However, such haste as a routine procedure may not be justified. The question of procedure in these cases must be viewed from several standpoints, and from each it appears somewhat different. In the large general clinics, such methods of procedure may be conveniently carried out. In private practice, one must admit that there may be cause for hesitation as to the course to pursue. We recognize that both epitheliomas and sarcomas are almost sure to recur or to form metastases. The problem is the more complicated since often the eye affected has normal visual acuity—vision may even be better than in the eye not involved. It is difficult to persuade the patient that a good eye should be removed, and since the surgeon knows that even if it is removed the final effect, through recurrence and eventual metastasis, is usually tragic, there appears to be justifiable hesitation as regards enucleation. It is true that such arguments would not be sound if they eliminated, to a reasonable percentage, the danger of recurrence, but the testimony is rather otherwise. It therefore seems at least justifiable to remove the growth to the fullest possible extent, and in some cases this may be accomplished. The problem is even more complicated in view of the fact that Fuchs[5] and others have pointed out that there is a disposition toward the formation and recurrence of epibulbar tumors at the limbus, and furthermore that disposition to tumor metastasis may reach farther back into the general system—a tendency rendering recurrence still more probable. On the other hand, it is possible that recurrence may be retarded, or possibly avoided, by such forms of therapeusis as roentgen rays and fulguration (Burch). Weeks[6] believes that small pigment spots about the limbus should always be regarded with suspicion and removed the moment they begin to enlarge.

In the case reported here the tumor was readily removed, and, apparently, without leaving involved areas. Of course, this assumption can be clearly and definitely indicated only by the microscopic examination. The large uncovered area left was thoroughly curetted with the sharp edge of a cataract knife, all episcleral tissue being removed, and the raw surface was then completely covered by large Kuhnt flaps. The wound healed rapidly and looked well at the end of four or five days, when the patient returned home, to report later.

COMMENT

Sarcoma attacks the interior of the eye much more frequently than it does the exterior, and in the latter case almost always appears at the limbus as an epibulbar growth. These growths are usually pigmented, although nonpigmented sarcomas occur (one to five, according to Parsons[7]).

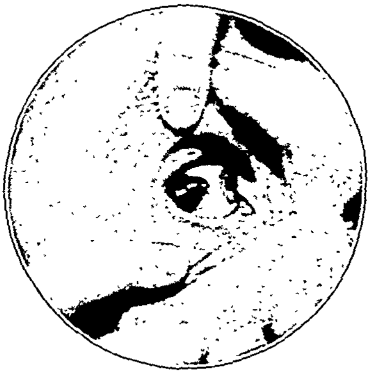

Fig. 1.—Appearance of eyeball, showing conjunctival growth.

Melanotic sarcomas develop in locations in which pigment is commonly present. In the case reported, the growth was separated from the limbus by at least 5 or 6 mm. Numerous cases have been reported of multiple sarcoma at the limbus, which, when removed, recurred at another situation in the same eye. The base is nearly always small, even when the growth is large, and many growths lie over the cornea without being adherent to it, which Parsons believes is a distinguishing sign from epithelioma. The deep part of the growth is usually about an area supplied by the anterior ciliary vessels, as was true in my case. When epibulbar sarcoma occurs at the limbus, the corneal stroma is usually not invaded, or, if so, is invaded mostly in the superficial areas alone. In a case reported by Wadsworth and Verhoeff,[8] the anterior third of the cornea was infiltrated, and in Sgrosso's[9] case the entire cornea was involved during the latter stages. Adamück[10] reports a sarcoma of the bulbus that became as large as an orange. A small tumor may, in rare cases, be accompanied by widespread pigmentation of the conjunctiva.[11] I have seen two other cases of melanosarcoma of the eyeball which appeared as small growths at the iris margin. Both growths were removed without difficulty, and, in both, metastasis to the liver occurred and the patients died within three years after the time of operation. These cases have never before been reported in the literature.

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[3] Verhoeff and Loring: Arch. Ophth. **32**, 1903.

[4] Burch, F. E.: Personal communication to the author.

[5] Fuchs: Text-Book of Ophthalmology, Philadelphia, J. B. Lippincott Company, pp. 226-230.

[6] Weeks, Diseases of the Eye, Philadelphia, Lea & Febiger, pp. 223-229

[7] Parsons The Pathology of the Eye, New York, G. P. Putnam's Sons, pp 127-130, 138-140.

[8] Wadsworth and Verhoeff Tr. Am Ophth. Soc., 1901

[9] Sgrosso Ann. di ott **21**, 1892.

[10] Adamuck: Arch. f. Augenh **11**, 1881

[11] Greeff, in Orth: Lehrbuch, Berlin, 1902

Sarcoma in other parts of the conjunctiva than the limbus is rare. A case involving the upper fornix has been reported by Griffith, and another at the inner angle of the socket of an enucleated eye has been reported by Gorecki. Cases of sarcoma of the palpebral conjunctiva have been reported by Mittendorf, Ewetski and Feilchenfeld. According to Fuchs, sarcoma, in contrast to epithelioma, grows more in height than in breadth and is usually attached by a small and slender base or pedicle. Sarcoma of the conjunctiva is almost always pigmented, differing in this respect from epithelioma. The sarcoma usually develops from areas in which pigment is normally present and for this reason manifests a tendency to appear at the limbus, where pigment, even under physiologic conditions, frequently occurs. Not infrequently at this area pigment moles are found, somewhat flat in character, with a structure somewhat similar to that of the soft nevi of the skin, and out of these sarcoma frequently develops. Both types, either the pigmented or the nonpigmented, possess a high potential capacity for malignant development. These pigmented areas are flat and consist of groups of large cells of endothelial type. The pigment is found both within and without the cells, and the connective tissue surrounding it may also be pigmented. The epithelium over the spot also frequently contains pigment, and when this starts to proliferate it may form an intensely malignant melanotic growth. There is difference of opinion as to the origin of the growths just described (nevi), Recklinghausen believing that they come from the epithelial cells of the lymph vessels, and Unna that they come from the surface epithelium, while Ribbert thinks that they arise from the chromatophores. Nevi situated at the corneal limbus may remain for many years without change but, when they start to grow, may develop rapidly into sarcoma. Roemer states that both epitheliomas and sarcomas readily recur but when situated in the conjunctiva rarely penetrate the eye. Some believe that, when they are so situated, metastasis rarely occurs. In intra-ocular sarcoma this is quite different, since early metastasis is much to be feared. The epithelioma may contain pigment, and since a sarcoma may also be a leukosarcoma, histologic differentiation may be difficult, as both forms of tumor have an alveolar structure; but usually sarcoma of the conjunctiva contains pigment, while the epithelioma does not. The epithelioma is usually nonpigmented and is flatter than the epibulbar sarcoma.

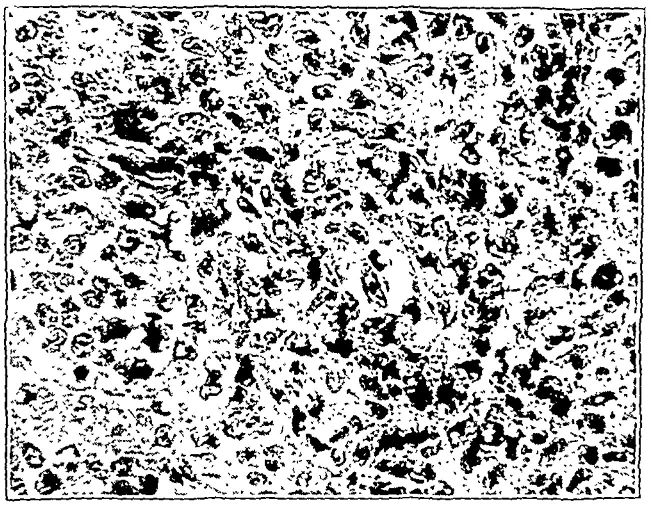

Fig. 2.—Microscopic structure of growth indicating that it was a melanosarcoma.

According to Parsons, microscopic study of sarcoma of the limbus shows few peculiarities; the growths consist of round or spindle-cell growths, varying in the different cases and generally arranged in bundles. According to Wadsworth and Verhoeff, multinuclear cells also may occur, and Parsons believes that these are not true giant cells as found in myeloid sarcoma but merely the evidence of rapid cell division. Commonly, they have an alveolar arrangement, having rings and columns of cells enclosed in a fibrous tissue framework. This peculiarity of structure caused Panas[12] to doubt the frequency of sarcoma at the limbus. Panas believed that tumors at this point should be regarded as mixed epithelioma and sarcoma, and as nonmalignant in character. Parsons strongly protests against the acceptance of this idea, asserting that the idea of the simultaneous occurrence of carcinoma and sarcoma is not to be accepted. Different views are held as to the origin of melanotic sarcoma—as to whether it is developed by the tissue cells or from hemoglobin. Penetration of the globe from conjunctival sarcomas is rare but does occur, the extension of the growth passing along the perforating anterior ciliary vessels.

1111 Nicollet Avenue.

TUMORS OF THE EYE AND ADNEXA *

E. H. CARY, M.D.
DALLAS, TEXAS

The medical literature of recent years abounds in minute descriptions of tumors in and around the eye. I have thought, however, that my own observations and results might be of some value to my younger confrères whose experiences await them.

Most intra-ocular tumors are malignant. Tumors occurring near the eye in the orbit are more frequently benign; tumors occurring on the eye itself are often epitheliomas with a tendency to metastasize.

I shall refrain from the use of detailed reports from the laboratory. Photomicrographs and minute laboratory descriptions have filled many pages of medical literature, where a statement of clinical observations would have sufficed. As the subject matter of this paper involves several types of malignant and benign growths, I will utilize the conventional classification and try to bring to attention the points that were of clinical interest.

Collins and Mayou[1] subdivide neoplasms into (1) teleplasms; (2) metastatic growths, and (3) cysts. Teleplasms are subdivided into three classes: teleplasms from mesoblasts, teleplasms derived from neural epiblasts, and teleplasms arising in parts, derived from mesoblasts.

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[12] Panas: Arch. d'opht. **22**, 1902.

* *Read before the Section on Ophthalmology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.*

* Owing to lack of space, some of the illustrations have been omitted here. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Collins and Mayou: Pathology and Bacteriology of the Eye, Philadelphia, P. Blakiston's Son & Co.

TELEPLASMS FROM MESOBLASTS

One of the earliest intra-ocular complications occurring in my private practice was apparently a glioma in each of a child's eyes, and, one would have supposed, derived from neural epiblasts:

Case 1.—The child was 10 months old in the fall of 1902, when he was brought to me. The physician sent the child on account of the yellow reflex in each of the pupils, and supposed blindness. The mother stated that the child had been ill with pneumonia. On examination, it was thought that each eye was in tension. The anterior chambers were shallow. The pupils were slightly increased in size. The irides were not adherent—the golden reflex was seen through the lens, and it was my judgment at the time that it was not pseudoglioma in spite of the possibility of a metastatic choroiditis having occurred from pneumonia.

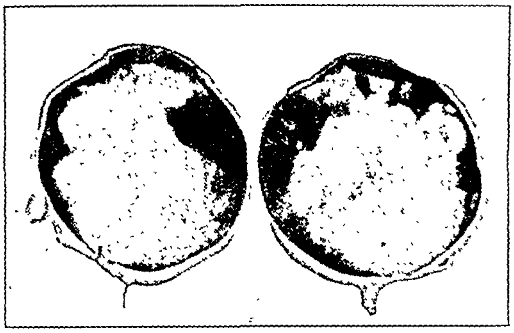

Fig. 1.—Neuro-epithelioma in a child, aged 18 months: optic nerve invaded; posterior two thirds or more of eye filled.

Sympathizing with the mother, who objected to both eyes being enucleated, I treated the child with available x-rays for approximately fifteen minutes in each eye, on alternate days, for a period of six weeks. The x-rays available were made by the old static machine then in use. Eight years later I removed the crystalline lenses of the child, as they were calcareous. Afterward I split the posterior capsule, as well as a dense membrane that lay in front of the detached retina, and secured for the child some vision from a portion of the eye corresponding to the retina, which was intact.

In those days there were no tonometers and roentgenology was crude. I had seen gliomas in hospital service, and I felt certain of my diagnosis; but the fact that the child did not die contributed to my education. I was left in doubt as to the diagnosis and yet, although a quarter of a century has passed, I can recall all the reasons for my conclusions when the diagnosis was made.

I am reminded of this case and recall it here. Since the literature indicates that the x-rays frequently destroy a new growth of sarcomatous nature and since the later reference to the paper by Parker and Stokes[2] suggests that gliomas are at times sarcomatous, I feel that this patient should probably be classified as having had tumors derived from the mesoblast, these cells being possibly more susceptible to the influence of this long repeated dosage of mild x-rays.

Pfahler[3] describes a series of twenty-six cases of sarcoma treated by him with unique results. He states that in three of his cases of intra-ocular sarcoma the disease had been arrested from three months to eighteen years. He states that in fourteen cases of primary retrobulbar sarcoma he failed in two cases whereas in nine cases there was freedom from symptoms from one to nine years. He concludes that there has been improvement from irradiation, but the use of radium has ultimately failed in recurring cases of sarcoma of the orbit. He also states that the x-rays have been successful in the majority of cases of primary sarcoma of the orbit and should be the method of choice in treatment. Irradiation does no harm to the normal tissues, and he thinks a biopsy for diagnostic purposes does not seem justified.

In the light of the study of the pathologic material from Parker's clinic made by Warthin, all of the so-called gliomas were, in fact, round cell sarcomas. Six of the neoplasms had their origin in the choroid and two in the retina. Two were undetermined. This statement, based on an excellent study of the material, is at variance with what we have all been taught and believed about glioma seen in little children.

I have wondered many times whether the x-rays had not succeeded in destroying the tender embryonic cells, sarcomatous in fact, which left the child with the kind of eyes I found to operate on many years later.

According to Fuchs, malignant neoplasm developing in the eyeball will have to be regarded as a glioma in a child and a sarcoma in an adult. The fact remains that the tumor is exceedingly malignant, regardless of the particular tissue in which it arises. Parker calls attention to the fact that a majority of writers agree that "a proliferation of glial tissue cannot have a high degree of malignancy observed in intra-ocular neoplasm, and that a glioma of the retina has nothing in common with a glioma of the central nervous system." In the light of this pathologic study a grave doubt is raised as to the correctness of the term "glioma of the retina" as all inclusive.

TELEPLASMS DERIVED FROM NEURAL EPIBLASTS

The cases presented here serve to emphasize to the general practitioner that he should know more about intra-ocular growths. It is hardly conceivable that parents would delay bringing their child to an ophthalmologist if practitioners were more observant and more promptly interpreted the meaning of the golden reflex, sometimes called an "amaurotic cat's eye."

I have pathologic material from four children which seems undoubtedly to be derived from neural epiblasts that can be classified as "neuro-epithelioma of the retina," each of these far advanced. Three of them had grossly invaded the postocular structures; in one, it was necessary to section the optic nerve, when I was able to demonstrate the outgrowth of the cells. Case 2 was seen recently:

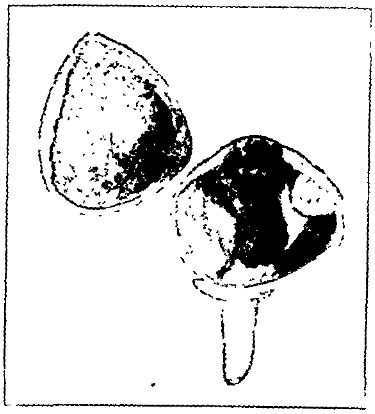

Fig. 4 —Sarcoma near ciliary body.

Case 2.—I removed the left eye from a child, 18 months old. The tumor almost filled the posterior two thirds of the eye. The family observed the golden reflex in this eye from the time the child was 8 months old, the child being 18 months old when it was brought to my office. It was left to the surgeon in a nearby city, who made a diagnosis of cataract and sent the child to me for advice.

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[2] Parker, W. R., and Stokes, W. H.: Intra Ocular Sarcoma in Children, J. A. M. A. 87: 1891 (Dec. 4) 1926.

[3] Pfahler, G. E.: Roentgenotherapy in Sarcoma of the Orbit, J. A. M. A. 84: 87 (Jan. 10) 1925.

The three other cases of this type, one in a baby 14 months old, were described by the parents as beginning with a cloud coming over the eye for three months before they sought advice. A well developed glioma was recognized in the child aged 14 months, and the eye was removed, Feb. 14, 1921. Dec. 19, 1921, the tumor had returned; this was all exenterated and radium was used. The baby died, March 20, 1922.

Case 3.—A child, aged 19 months, was seen, January 24, 1922. The mother thought she had observed that the left eye was smaller at birth. Four months before, a golden reflex was observed. The eye grew larger without apparent discomfort to the infant. Within the last two weeks the eye had been growing rapidly, and at the time of examination there was extreme exophthalmos. January 25, the orbit was exenterated and 50 mg. of radium was left in for twelve hours. The patient apparently did very well.

The pathologic report was glioma of the retina with invasion of the orbital tissue. The specimen consisted of the eyeball, together with the conjunctival sac of the orbit. The eyeball was elongated posteriorly, where it was irregular and nodular, by a tumor mass that protruded, forming a mass 13 by 1 and 8 by 1 cm. This mass was covered by smooth intact membrane. The tumor mass occupied almost the entire globe and, in addition, invaded the surrounding tissues. The mass within the eyeball was largely necrotic. The child returned in six months and radium was used again. The condition was hopeless, and the child died soon afterward.

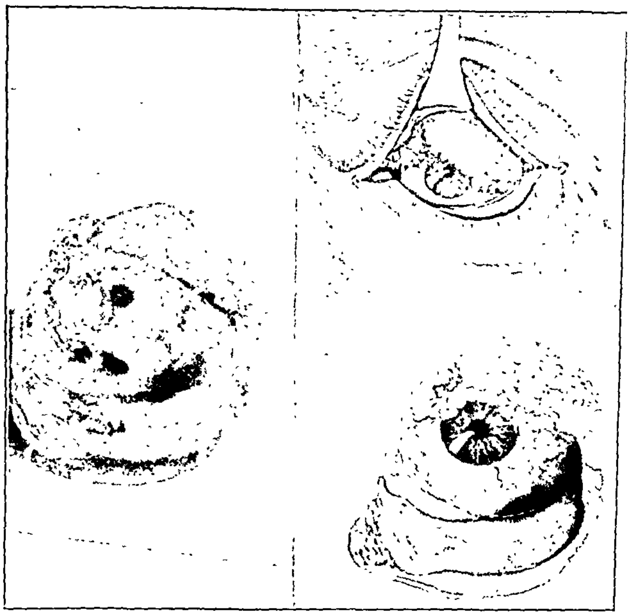

Fig. 8.—Extensive papillomas in patient, aged 82: drawing before removal; photograph of specimen afterward.

In the differential diagnosis of glioma from the pseudogliomatous conditions, Butler[4] points out the value of the slit lamp examination. He asserts that one will find cells circulating in the anterior chamber and that the retrolental space will be filled with cells, all of which would indicate pseudoglioma or an inflammatory process, whereas an absence of cells would be observed in case of tumor. In none of these cases would the use of the slit lamp be essential, for they were all far advanced; but it is conceivable that the slit lamp study would be of great value, as has been pointed out by Butler.

TELEPLASMS ARISING IN PARTS, DERIVED FROM MESOBLASTS

In adults, these growths are seen so near the optic disks that it would seem easy to assume that the growth is connected with the nerve structure; but they are found growing from the choroid and, located as they are, it is impossible to utilize transillumination successfully. There are two types of these tumors, the pigmented and the nonpigmented.

In the light of some recent literature, the origin of melanotic or pigmented tumors of the eye is difficult to determine. Neoplasms which cannot be classified as rapidly growing tumors are made up of young, or embryonic, cells that have not developed distinctive characteristics. The cytoplasm in the cell is more abundant, and the characteristic cell type develops when the tumors are slow growing, while rapidly growing tumors have cells with large or multiple nuclei with little cytoplasm. Melanin[5] is produced by mature epithelial cells highly differentiated. Energy is spent in this production; hence tumors grow more slowly than when nonpigmented, such as the unpigmented tumor of the choroid.

I have quoted the observations of Warthin, who reclassified gliomas as round cell sarcomas, confusing our conception of the origin of gliomas. Now, in a reverse manner, we are called on to reclassify and revamp our views of the melanosarcomas; for instance, one is taught that the choroidal coat of the eye comes from the mesoderm; that the formation of pigment is a product of the epithelium which is from the ectoderm, and therefore that the melanin which is reproduced originates from the epithelium itself. Hence the modern term melano-epitheliomas.

The foregoing, I think, states in simple language the result of the study of this subject, which seems now to be confusing in an interpretation of the origin of the cells that have become malignant in the locality under discussion.

It has been found in the great eye clinics[6] that sarcoma of the choroidal coat is comparatively rare. In point of frequency it occurs once in approximately 2,500 ophthalmic cases. There are definitely four stages in the development of sarcoma of the choroid:

1. The tumor grows without apparent irritation.
2. Secondary glaucoma is recognized by increased tension.
3. There is continual growth of the tumor, and rupture of the globe.
4. Intrabulbar growth becomes extrabulbar and there is an increased opportunity for metastasis.

As an aid to early diagnosis I value highly the use of transillumination. A shadow shutting out the red reflex in the pupil may, of course, mean a large hemorrhage, but occurring in connection with other circumstances it is most helpful in concluding the diagnosis.

If the tumor should arise in the ciliary body or near it in the choroid, it may be difficult to see, although easy to transilluminate.

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[4] Butler, T. H.: On the Use of the Slit Lamp in the Differential Diagnosis Between Glioma and Pseudoglioma, Arch. Ophth. 55: 155 (March) 1926.

[5] Knight, Mary S.: Melanotic Neoplasms of the Eye, J. A. M. A. 83: 1062 (Oct. 4) 1924.

[6] Keiper, G. F.: Melanotic Sarcoma of the Choroid Coat of the Eyeball: Report of a Case with Apparent Secondary Involvement of the Retina, Ann. Ophth. 22: 445, 1913.

One of the first tumors of the choroid I saw in private practice was in 1903 in a woman:

Case 4.—Mrs. C., who had been under observation for some time by a confrère, came to me with secondary glaucoma. I could see into her eye, and made a diagnosis of sarcoma. It was quite large and located near the equator. I removed her eye and our pathologist, in cross-sectioning, managed to cut through the retinal vein. He reported that he found a cell within the vein. I kept in touch with the patient, expecting an early metastasis. When five years had passed, I doubted the pathologist's observation. Nine years after the eye had been removed, a sarcoma developed in the patient's left lung, which grew rapidly and from which she died. Incidentally it was her left eye and left lung that were affected. The slide was at the college for some time and although it was misplaced I found the specimen with the tumor fairly preserved and had another section made through the nerve, with the pathologic report that the vein was filled with pigment.

Case 5.—In 1912 a man, aged 23, came to me complaining of the field of vision of his right eye. With an ophthalmoscopic examination, a small detachment could be found over a dark growth near the ciliary body. Although his vision was good, he was persuaded to let me take out his eye on account of the belief that he had a sarcoma growing from the ciliary body. This was done. A cross-section of this eye was used as an example of the inability of any one to make a diagnosis of a tumor in the region where this was located, unless the pupil was dilated.

For three or four sessions of the legislature, during an argument before the legislative committee, this tumor was shown, and it is interesting to say that the majority report invariably sustained our arguments. I always thought the demonstration of this tumor was the determining factor in checking the efforts of those who wished, through statutory enactment, to secure preferential legislation.

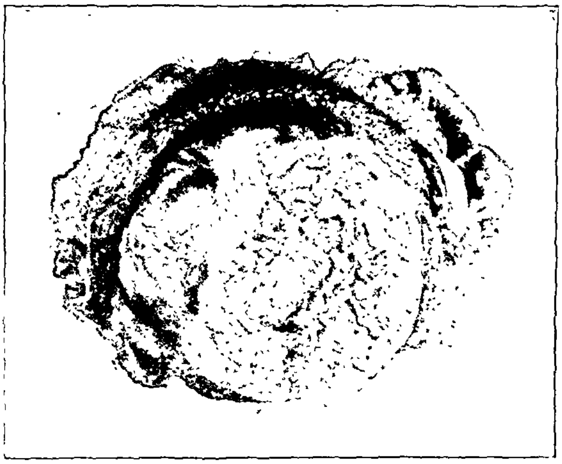

Fig. 9.—Epithelioma involving conjunctiva and lower lid.

Case 6.—Mrs. T., aged 36, seen in 1915, had noticed for some time that she was unable to see below with the left eye. A detachment was found above and what was also thought to be a tumor producing the detachment. The patient's detachment increased and secondary glaucoma was precipitated; the eye was removed and a melanosarcoma was found located in front of the equator above the horizontal meridian. The patient remains alive.

Case 7.—Mrs. C., aged 41, complained of a disturbance of vision in the right eye. The Wassermann reaction was negative. Of the eight sarcomas of choroidal origin in adults, three had one characteristic in common. Each grew from a place near the nerve head and transillumination could not be used effectively. This one I watched for some weeks. It looked at first as if I were dealing with a cyst, and this cystic appearance was round, smooth and apparently growing from the side of the nerve head itself. Transillumination showed nothing. I became convinced, however, that it was a detachment, and that it was of tumor origin. The vision was 20/200 in the affected eye and 20/17 in the left eye. The eye was removed and *the tumor was found growing from the point which* approximated the nerve head. The patient is living.

Case 8.—Mrs. C., aged 38, was examined, May 9, 1928. The Wassermann reaction was negative. There was a complete detachment of the retina. The patient had been blind three years before secondary glaucoma developed. The patient was seen two days before symptoms of glaucoma, when the tension was 10. A diagnosis was made on the basis of the history and deductive reasoning. Transillumination was of no service. The latter case was shown at one of my clinics, where a preoperative diagnosis was made. Following the removal of the eye, it was hardened over night by the injection of 10 drops of 36 per cent solution of formaldehyde, which was injected through the optic nerve. The next day the eye was cross-sectioned, the interior being thoroughly hardened by the procedure of the previous day.

The question arises, In how short a time after the injection of formaldehyde would it be feasible to cross-section an eye? I have found it most desirable to harden and cross-section macroscopically for class teaching. The older method of waiting several days rather caused one to lose interest and frequently not to observe the pathologic changes disclosed by operation.

An experiment was made on pigs' eyes, a dozen of them being injected through the optic nerve with from 8 to 10 minims (0.5 to 0.6 cc.) of solution of 36 per cent formaldehyde. These pig eyes were injected through the nerve and the nerve was tied as the needle was withdrawn. The eyes were cut at intervals of one hour, and in those in which the vitreous seemed to grow firmer and harder and in which the retina was not detached any from the procedure of cross-sectioning the eye, the vitreous was not solidified within a period that would make it practical to open the eye on the day of the operation; yet in a lapse of many hours extending to the next day, the mass does solidify and will answer every purpose, as in the demonstration in the case under discussion.

Case 9.—Mrs. R., aged 34, seen Oct. 29, 1928, had a tension in the left eye of 8 and in the right of 15. When light was brought over the nasal area, the pupillary light was lost. The retina was detached over that portion, the nasal quadrant and beyond. The patient stated that the vision in the left eye had at first gradually diminished, but later noticeably over a period of four years. The eye was removed. The diagnosis was substantiated, and the patient is living. The specimen showed choroidal tumor. The diagnosis was melanosarcoma.

Case 10.—C., a man, aged 40, seen Oct. 14, 1929, had a tension in the right eye of 34 and in the left of 18. He stated that he discovered that vision was gone in the right eye about three months before. He felt certain that his vision had been all right within the year. The general health was good. The Wassermann reaction was negative. The lid on the right side seemed to be drooping. It was impossible to use the perimeter. The pupil when two thirds dilated did not react to light. The retina was detached. The diagnosis was malignant tumor. The eye was removed, and the diagnosis confirmed. The specimen was preserved. The patient is living.

TELEPLASMS DERIVED FROM CUTICULAR EPIBLASTS

I have selected three interesting cases to consider under this classification:

Case 11.—A., a man, aged 62, had an epithelioma of the cornea, diagnosed as a pterygium. He had been operated on three times elsewhere. I removed the globe in 1907. Within twelve months the patient returned with a metastatic tumor of the neck. Further operations and treatment were of no avail, and the patient died.

Case 12.—A., a man, aged 82, seen Oct. 10, 1928, had observed a growth for a year, the size of which had increased rapidly during the past two months. The size of the growth, the age of the patient, the likelihood of its return and the inability to cover the eye with conjunctiva if the growth alone was removed determined me to remove the eye and adnexa. Besides, I believed that the growth was malignant. There was no history of cancer or tuberculosis in the family. The growth was diagnosed as epithelioma of the left eye. The postoperative diagnosis was papilloma. At operation, October 20, the globe and adnexa were removed. At biopsy it appeared nonmalignant, but the pathologist asserted that deeper sections through the tumor would probably give evidence of a malignant condition. The patient is living.

Case 13.—A negro, aged 73, with a history of an extra-ocular bulbar growth in the lower quadrant of the left eye, growing since June, 1929, was operated on by a clinical assistant in my clinic in October, 1929. Microscopic examination showed squamous cell carcinoma. The patient lived out of the city and returned in February, 1930, with a history of the growth having returned in December, 1929. The eye with the conjunctiva, except for cutaneous tissue, was completely removed by me, leaving orbital fat. The presence of skin saved closing the wound. Radium was advised.

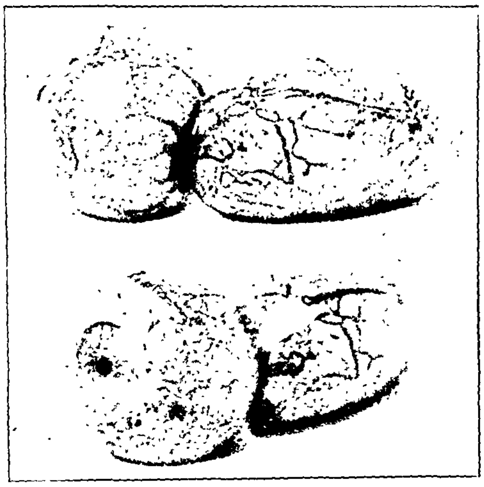

Fig. 10.—Neuroma of optic nerve.

OPTIC NERVE TUMORS

I have had two cases of optic nerve tumors, one derived from neural epiblasts and the other from mesoblasts.

Case 14.—*Neuroma of the optic nerve.* A woman, aged 21, had marked exophthalmos, the macular region being pressed forward as if purposely done with the movement of the finger; the optic nerve was white, the media were clear, and the eye was protruding but mobile in all directions.

The diagnosis was tumor of the nerve. The eye and the nerve extending to the foramen were removed. No orbital fat was observed. The pathologic report was true neuroma of the nerve. The nerve tissue was entirely dominating.

Macroscopically the glistening appearance of the loose and soft looking smooth tissue was extremely interesting, for the fibrous element was of slight moment and apparently not a factor in the production of the tumor.

Case 15.—*Fibroma of the optic nerve.* M. C., a woman, had marked exophthalmos, the eye being pushed forward and outward; tension was normal; vision was zero. The optic nerve was perfectly white. The impression gained from examination was that the anteroposterior diameter was shortened. The diagnosis was fibroma of the optic nerve. The eye was prominent. The tumor was removed after a tenotomy of the superior rectus and external rectus muscles, which were afterward sewed back in place, and an effort was made to save the globe and also to watch the results. On account of loss of the nerves severed, keratitis became well established, followed by ulceration of the cornea due to marked hypotony. The eye grew soft rapidly. This tension was slow to recover and the healed cornea left a dense scar. There was no loss of motion of the globe and the eye looked fairly well. Later on the globe developed intra-ocular tension, becoming very painful, and it was necessary to remove it. The patient now wears a glass eye.

MESOBLASTIC TUMORS; ORBITAL SARCOMAS

Case 16.—Mrs. M., seen Aug. 1, 1910, had a tumor producing exophthalmos. At operation, the internal rectus was tenotomized and a small tumor was removed, near the optic foramen close to the optic nerve, evidently growing from the intramuscular septums. The pathologist reported melanosarcoma. The patient returned, Dec. 26, 1911, approximately eighteen months later, with protrusion of the eye and evidence of return of the tumor, at which time I ligated and excised all the branches of the external carotid on each side and completely exenterated the globe. The patient was observed many times and had roentgen treatments. There was evidence of bony enlargement deep in the orbit, which was covered with skin. March 10, 1915, the x-rays were again used on account of evidence of tumor commencing in the bone. This patient lived in the country; the growth advanced into the brain and she died some months later.

Case 17.—Mrs. A., seen in 1910, had a sarcoma of the orbit involving the soft structures beneath the frontal bone on the temporal side. The tumor was removed, and the external carotid arteries and branches on each side were ligated and excised. The eyeball was saved. The patient was reported alive but blind in the left eye in 1914. I was unable to locate her later but am certain that she died.

Case 18.—G., a man, with orbital sarcoma, was operated on, May 6, 1912. March 23, 1915, the patient was still living, but he died in the latter part of that year. Marked exophthalmos was present at the time of operation. The tumor had destroyed the sight of his right eye, and the optic nerve on the nasal half of his left eye was definitely choked for about 6 diopters, there being no vision to the temporal side; whatever vision he had was from the temporal half of the nerve of the left side. The arterial trees on each side of the external carotid were excised and ligated. A complete exenteration was done and it is remarkable that the patient lived as long as he did, the tumor having already involved the bone.

Case 19.—Miss B., aged 16, seen Oct. 12, 1922, had a tumor growing back of the right eye. The eye was pushed well out, and a large tumor was located on the inner side of the orbit beneath the frontal bone. The condition dated back nine years following an attack of the grip, when protrusion was noticed. There were no constitutional symptoms referable to the eye. For a period of five years there was a marked protrusion of the eyeball; then a hard mass began to form, which continued to grow and enlarged until the patient stated that it had grown over the eyeball. She did not complain of symptoms other than headache.

Vision in the right eye was 20/200 when the lid was lifted; in the left, 20/40. The visual field was normal in each eye.

A diagnosis of fibrosarcoma was made. The postoperative laboratory diagnosis was "endothelioma involving the orbit," expressed in different terms.

At operation, ligation and excision of all branches of the carotid on each side was done. Fibrosarcomatous tissue underlying and closely interwoven with the skin was removed. The eyeball was saved until laboratory study of the tissue could be made, the slow growth of the tumor suggesting conservatism.

The specimen consisted of a tumor mass 5 by 33 by 23 cm. together with a small fragment of similar tumor tissue and two small lymph nodes, the larger of which was 0.6 cm. in diameter. The tumor surface was irregular and nodular. The mass cut with moderate resistance and was grayish, translucent on its cut surface, with a yellowish area near the periphery.

Microscopically, the tumor mass consisted chiefly of oval cells, having vesicular nuclei and resembling closely endothelial cells. There was a tendency everywhere to the formation of compact masses of tumor cells having a roughly concentric arrangement. A few of the dense masses were hyalinized and a smaller number were calcified; mitotic figures were few. There was no invasion of the included lymph nodes.

XANTHOSARCOMA OR LIPOSARCOMA

Case 20.—Mrs. A. G. had a tumor of seven years' standing producing a marked exophthalmos, so that the slightest manipulation of the lids caused the eye to protrude as on a stem. The sinuses were clear. The blood count was normal. The field of vision in each eye was normal; blind spots were greatly increased on the affected side (right) with the appearance of choked disk. Refraction gave evidence of plus 3 diopters, which I considered the result of the tumor pressure on the posterior surface of the globe. The vision was 20/30 in the right eye and 20/15 in the left. Tension was 25 in the right eye and 16 in the left. The preoperative diagnosis was "benign tumor," possibly fibroma growing in the orbital cavity. The tumor was removed, March 19, 1929.

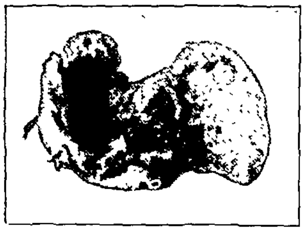

Fig. 11.—Fibroma of optic nerve.

A section of the tumor was examined by the pathologist, who reported that sections of the tumor removed from the orbit showed fibrous connective tissue; many of the cells had slight deposits of fat or lecithin; in some places there were groups of large polyhedral foam cells and in other places groups of cells resembling fat cells, except that they had prominent nuclei. A few giant cells were seen. Mitotic figures were not seen. The pathologic diagnosis was xanthoma of the orbit.

On my request, some of the section of the tissue was submitted to Dr. Ewing for examination and he made the following statement:

> "I have been seeing such orbital tumors as you send me for many years and have never known what to call them. I used the term 'endothelioma' for many years and then discarded it. The origin from fat tissue has come next on my list. It should make the tumor a xanthoma or liposarcoma. I do not think it is very malignant, but I have not followed the clinical history of my cases. The xanthomatous character of many cells is quite clear in your case. The yellow color favors an origin from fat tissue. You might stain it with sudan III. Xanthosarcoma and liposarcoma mean practically the same thing."

The tumor was encapsulated and, as I was about to remove it in toto, my assistant, attempting to keep it from oscillating, caught it with tissue forceps, rupturing the capsule. Although the tumor mass was removed, fluid appeared that seemed to come from a cyst in a tumor mass very much resembling brain tissue. Drainage was established with silkworm sutures; the eye was replaced, and when the patient was last seen the eye was on the same level, rotating in every direction. There was, however, some ptosis of the lid which has now disappeared. Vision in the eye was normal and the appearance of the choked disk had disappeared.

Under the title "Tumors of the Orbit of Doubtful Origin," Major Wright describes an identical tumor, except that he, in his manipulation, removed the tumor in pieces, and stated that there was no capsule. In every other respect, his description of the material of the tumor and the microscopic observations would suggest that he failed to appreciate that it was encapsulated.

ORBITAL TUMOR—GLAND TYPE

Case 21.—B., a man, seen in March, 1919, who had passed the railroad examination, did not know just when the eye commenced failing. There was no history of cancer in the family. One sister had died of tuberculosis eight years before. In June, 1921, he noticed that his left eye was lower and was being slowly pushed out. On account of exophthalmos and limited motion, the eye being pushed down and outward, a diagnosis of lacrimal tumor was made, Nov. 29, 1922. I removed the tumor and restored his eye to its normal level. and the patient was able to retain his position as a railroad man. Vision in the left eye was 5/200. There was marked paleness of the optic nerve and reduction of the field of vision. Following the operation, the vision arose to 15/200. Vision was normal in the right eye. The field was normal and has so remained as far as our records go.

The tumor mass was roughly oval and measured 3 by 2.8 by 2.2 cm. It was sharply defined, having a thin capsule, with the exception of an irregularly torn area on one surface. The sectioned surface consisted of banks of grayish tissue which anastomosed irregularly and between which were numerous small translucent areas, some of which contained yellowish regions pin-point in size. The tumor was relatively soft.

Microscopically the tumor consisted of clumps of small epithelial-like cells, some of which were arranged in the form of glands with pink-staining colloidal contents. Many dense masses of similar cells contained no definite gland spaces. The stroma of the tumor was abundant and edematous, with the myxomatous appearance usually seen in the common mixed tumors of the salivary glands. No evidence of a malignant condition was apparent anywhere in the sections examined.

The diagnosis was mixed tumor of the salivary gland type.

ORBITAL CYST

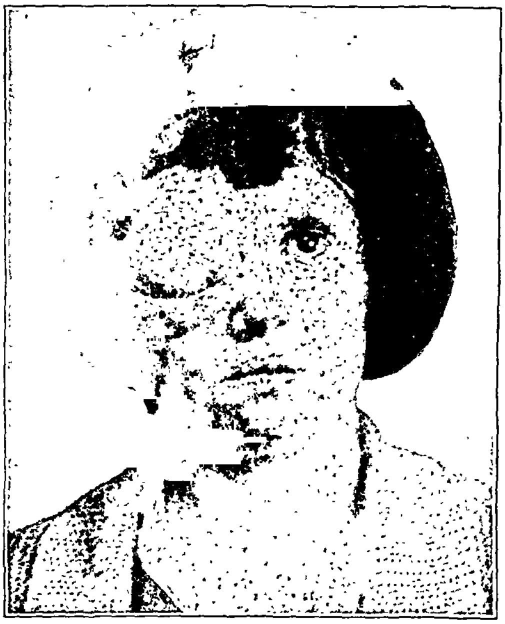

Fig. 12.—Endothelioma involving orbit.

Case 22.—B., a man, aged 28, had a tumor, causing exophthalmos, which had spontaneously lessened in size twice over a period of four years. He had no pain. The eye was pushed downward and outward. The preoperative diagnosis was cyst of the lacrimal gland. There was a history of the patient's having had a fall or blow over his head some years before. March 30, 1923, tension in the right eye was 15, and vision was 20/17, with some concentric reduction in the field of vision. The left eye did not register tension, and vision was 6/200. The field of vision was contracted concentrically and was definitely contracted for colors. The Wassermann reaction was negative.

The patient was seen by one of our ophthalmologists, who prescribed roentgen irradiation for a number of months, and had the patient's tonsils removed. He took a section for diagnosis, probably muscle, and said that it was an "innocent tumor" and that he would have to remove the eye for the purpose of getting the tumor; then instead he treated the patient with x-rays.

Microscopic study of this tumor definitely connected the history of trauma as the cause. The columnar epithelium possessing cilia originated from the mucous membrane of the cells underlying the orbital wall, and the bony growth was evidently a repair of the fractured bone which occurred in this locality years before. The cyst was the result of this misplacement of tissue, and the cystic wall had pressed on the lacrimal gland, destroying it, and had ruptured twice, spontaneously lessening the pressure on the eye, all of which was accounted for in the history of the case.

I removed the tumor, April 2, 1923, and the position of the eye became good. Observation over a long period revealed improved eyesight and no return of exophthalmos.

CONCLUSION

I wish especially to emphasize the value of injecting an eye specimen with solution of formaldehyde, as it aids materially in the clinician's macroscopic study of the eye without preventing further examination microscopically.

The procedure of tying and incising all the branches of the external carotid on each side seems definitely to have delayed the death of several of the patients in whom it was used. I have used this operation for sarcoma of the antrums and of the tonsil; I have one patient so treated for sarcoma of the antrum living now with the tumor intact, having operated on her in 1913. The starvation method cannot be expected to be of great value when a branch of the ophthalmic artery is aiding in the nourishment of the field.

I have had many cases of orbital sarcomas not here described. The starvation operation is of no value in a carcinomatous condition, for metastasis takes place through the lymphatics.

It is hoped that the general practitioner can be interested to look for the "golden reflex" in children's eyes.

1717 Pacific Avenue.

ABSTRACT OF DISCUSSION

Dr. Edward Stieren, Pittsburgh: I am not in accord with Dr. Morton's statement that melanotic sarcoma of the conjunctiva is not a clinical rarity. To my mind it is one of the rarest of ocular conditions.

I have observed the condition but twice.

In both of these cases the growth arose away from the limbus but reached this region in its extension. Both were confined to the conjunctiva and subconjunctival tissue and had not involved the sclera. I believe the cure in these two cases to be due to the wide excision of the tissues, and to thorough cauterization of their bases. In the first case, with three recurrences, some foci must have been permitted to remain and developed into new growths.

Flat tumors of this nature should be looked on with more suspicion than the more rapidly growing pedunculated growths, the prognosis for recurrence and metastasis being much more favorable in the latter after thorough removal.

I have had no experience with roentgen-ray, fulguration, radium, and thermophore applications, in malignant conditions of the conjunctiva. My feeling is that complete surgical removal would be the best method, eradicating at once all foci of a disease so prone to recurrence and metastasis.

Dr. Walter E. Camp, Minneapolis: Dr. Cary has given clinical reports of twenty-two cases of tumors of the eye and adnexa. Some of these cases were seen twenty-five years or more ago when methods of diagnosis and treatment were much inferior to those employed in more recent years. During the past five years a great deal of confusion has arisen in ophthalmologic literature regarding the nomenclature and origin of intra-ocular tumors. It would seem desirable, for the present at least, until further proof is furnished, that we adhere to the commonly accepted terms applied to these growths. The highly malignant, nonpigmented intra-ocular tumors occurring in infants and young children which have their origin in the retina should be called retinoblastomas (Verhoeff). The less malignant, pigmented (actually or potentially), intra-ocular growths occurring in middle age which have their origin from the uveal tract should be called malignant melanomas, after the terminology of Ewing. This group of tumors comprises the so-called leukosarcoma and melanosarcoma. The question of pigmentation depends solely on differentiation and oxidization. Dr. Cary's plea for the early recognition of intra-ocular tumors is a timely one. The principle of the early recognition of cancer is just as important and as applicable to the eye as to other parts of the body. This is especially true in regard to neuroblastoma, which is highly malignant and can be cured in only a small percentage of cases when recognized early. I feel convinced that Dr. Cary's first case was one of bilateral metastatic retinitis rather than of neuroblastoma. Bilateral neuroblastoma advanced to the stage reported in this case would hardly have responded so readily to irradiation. The question of the efficiency of x-rays and radium after enucleation or exenteration in cases of intra-ocular growths is much debated. In neuroblastoma they have little value except in cases in which the tumor is diagnosed very early.

Dr. Laura A. Lane, Minneapolis: I have been making a study of sarcoma of the eye over a period of eight years, collecting about 530 cases, excluding reports of the past five years, so that the value of other treatments than surgery alone could be ascertained. I have found, since Verhoeff and Loring's report, 77 cases of sarcoma of the conjunctiva in the literature from 1903 to 1925. Three reports were not available. Eighteen of these, including the foregoing, are too meager to use. This leaves 59 cases to study. The number of operations done was 92; number of recurrences, 82; number of metastases, 15; number of deaths, 7; results unknown, 17. Longest period without recurrence or metastasis, 7½ years: one, 5; one, 6; all the others recurred in a much shorter time. The period by years without recurrence, metastasis or death, is interesting. The first year, 11; the second, 7; the third, 2; the fifth, 5; seventh year, 1; ninth year, 1; tenth year, 1; thirteenth year, 1; eighteenth year, 1. During the last fifteen years new forms of treatment, radiotherapy and fulguration, have come into use. It is well to make comparison of the value of these forms of treatment. This study shows that 20 of the 59 patients received radiotherapy; 1 fulguration and cauterization. The number treated by radium alone was 2. One was traced seven years, the other more than twelve years without recurrence or metastasis. The number by operation and radium, 7; by operation and a combination of x-rays and radium, 10; by x-rays alone, 1; by fulguration and cautery 1. Those patients treated by operation and radium, or by operation and radium and x-rays combined were living and well, free from recurrence or metastases, from one to fifteen years later except three. Two of the three were soon lost trace of; the third, aged 81, had had a growth two years and lived two years after the radiotherapy, dying of metastasis. In reference to Dr. Cary's paper: These epitheliomas which occur in the conjunctiva are of considerable importance because the majority recur quickly. Within the past month I have had three cases under treatment—two epitheliomas operated on by good men with recurrence within two years; the other a melanoma. The greater the mitosis, the more rapid the recurrence. That is true of conjunctiva cases and also of other forms of ocular tumor. This problem of cancer is something that ophthalmologists should consider more and more. We must begin to look at it not from the eye alone, but from the problem of the whole body, and we must use biochemical thought in taking up the study of this question.

Dr. S. B. Muncaster, Washington, D. C.: I had a patient, aged 68, who had a melanotic sarcoma of the conjunctiva extending into the inner canthus of the upper lid. The pathologist's report was melanotic sarcoma. I could not get this man back to my office for about ten days, and during that time the growth had greatly increased in size. I sent him to Dr. Augustus Simpson to have x-rays and radium applied, and he told me that the eye would probably suffer from it. I said, "Well, he has cataract anyway and it does not make much difference." He applied the radium three or four times and secured a positive cure. Two years afterward the patient was still free from recurrence.

Dr. E. E. Blaauw, Buffalo: Reliable statistics about the percentage of recidives and metastases are needed. If operation is performed in the first stage of sarcoma, is the prognosis so much better than when the operation is done in the second stage? If these individuals are treated with x-rays and radium I think we should know what they can expect and what we have a right to prescribe for treatment. A metastasis may lie dormant for years, and one can never say a patient is cured; there may be a quiescent stage for ten or fifteen years and still the patient may die of metastasis. The fact that the metastasis may lie dormant so long shows that there is another phase of the subject, which is the localized and perhaps a more generalized immunization. For the further study the immunologist should be called in. In fifty years little has been learned about the value of the different cells as to prognosis. Ophthalmologists do not know when they should operate to the advantage of the patient. They do not know for sure that time is of any value. It may be that there is a very early condition of sarcoma, a small one, and if it is removed one does not know whether good is being done to the patient. It may be that if it is left in a little bit longer there will develop a certain immunization which is rather to the advantage of the patient, because in the first stage the patient may go as fast downhill as when he is operated on in the glaucomatous or second stage. I think that if ophthalmologists will look at that phase of the subject they will get renewed interest.

Dr. William H. Wilder, Chicago: There is one fact in regard to pigmented growths of the skin that should be impressed deeply on the mind of every practicing physician and ophthalmologist, one which has been repeatedly demonstrated by the dermatologists who see more of these cases than we do. They have warned us time and again that in all probability these cases that we call melanoma either of the skin or of the conjunctiva are potentially malignant nevi, which if irritated are apt to spread like wildfire. The first case reported by Dr. Cordes recites such a condition. I remember seeing a similar one, when I was an intern in the Cincinnati General Hospital, reported by Dr. Fall. A pigmented mole on the back that had been irritated furnished a starting point for multiple sarcomatous growths that invaded every part of the body. So rapid was the process that each day many new pigmented growths could be counted on the skin that had not been visible the day before. At autopsy it was found that they had spread to all the organs of the body, the brain, the spinal cord, the eyes and the marrow of the bones. If the initial pigmented growth is on the conjunctiva and usually at the limbus, unless one is prepared to go to the limit of enucleation or even complete exenteration, it should not be excised but given the benefit of all that is best in radium, x-rays, or some form of diathermy.

A case of mine is a remarkable example of what may be accomplished by radium in some of these cases. The case was originally reported before the American Ophthalmological Society, in whose transactions for 1923 a complete report may be found. This woman, aged 41, developed an epibulbar pigmented growth from a small melanoma of the conjunctiva, near the limbus. As the sight of the eye was good she absolutely declined enucleation suggested not only by myself but by Professor Fuchs, Dr. de Schweinitz and others. We decided to use radium. Emanations first tried proved ineffective and the metal was used. By constant treatment not only was the growth gradually dissipated but the abundant pigment scattered through the surrounding conjunctiva and scleral tissue was completely dispelled. When seen within the last three or four months, the eye had a perfectly normal appearance with normal vision.

Dr. F. H. Verhoeff, Boston: Dr. Cary has recorded a large number of tumors. Owing to lack of time, I shall confine my remarks chiefly to the tumors of the optic nerve. It happens that I have had opportunity to study sections of more tumors of the optic nerve than has any one else. I notice that one of the tumors was diagnosed as a neuroma and the other as a fibroma. There is no histologic description so we have nothing to go on except the pictures, and from these I am firmly convinced that neither of the tumors is diagnosed correctly but that they are both gliomas. If I am incorrect in this, then these cases should certainly be recorded at length because they would be the only authentic cases of neuroma and fibroma of the optic nerve in existence. In regard to the operator's anxiety as to whether or not there is a tumor in the eye he has removed, he can remove his anxiety at once by simply taking the eye to the dark room and transilluminating it. In this way the tumor can be seen well, and it is not necessary to mutilate the eye before sending it to the pathologist.

Dr. E. H. Cary, Dallas, Texas: My paper was written from the standpoint of a clinician and, if read in that light, one can understand why certain details were left out. The pathologic specimens of the two cases referred to have fortunately been preserved and are now being exhibited with photomicrographs of three dimensions. The specimens and photomicrographs can be seen in the Scientific Exhibit. I would be glad if the last speaker would go there and look at these specimens and the slides and then let us have the benefit of his opinion. In this connection, I may say that many excellent pathologists have seen the specimens and photomicrographs under discussion and their opinion substantiates anything that may have been said.

SUDDEN DEATH ASSOCIATED WITH BRAIN CYSTS*

LEILA CHARLTON KNOX, M.D.
NEW YORK

Interest in the subject of cerebellar cysts has been greatly stimulated and the knowledge of them has been brought to the attention of American pathologists chiefly because of the monograph of Lindau,[1] which appeared in 1926. The general recognition of the value of this paper has been such that several authors have adopted the designation of "Lindau's disease" to describe the cysts of the cerebellum associated with hemangiomas of the viscera, retina, medulla or cord. Lindau's paper contains a complete survey of 275 cases of cerebellar cysts of various types.

Five cases of brain cyst have been observed post mortem during the course of the last 2,000 consecutive autopsies at St. Luke's Hospital, including only 321 complete examinations of the skull. These probably represent four of the six types recognized in Lindau's classification. The cases may be thus summarized:

Case 1.—A man, aged 32, admitted to the medical ward, April 9, 1915, in the service of Dr. Samuel W. Lambert, complained of headache, vertigo, weakness of the legs and vomiting, of three months' duration. He could not walk without support and tended to fall to the right. The headache was occipital and left temporofrontal. The knee jerks were exaggerated. There was no clonus nor Babinski reflex. Death occurred, April 21. Examination of the brain showed a cyst about 4 cm. in diameter occupying the left lobe of the cerebellum with smooth, white, transparent lining in no way different from the remainder of the cerebellar tissue. It contained straw-colored fluid. Just beneath it, and in the position of the flocculus cerebelli, was a small, discrete, vascular tumor about 2 cm. in diameter. The lateral ventricles showed moderate internal hydrocephalus. Sections of the tumor showed that it was composed of a vascular mass of neoplastic gliomatous tissue with large spindle-shaped or polymorphous nuclei, embedded in a scanty neurogliar reticulum (fig. 1). The blood vessels were fairly thick-walled, and the tumor cells tended to grow best in their vicinity (fig. 2). *This tumor extended only up to the surface of the cyst and did not protrude into it.*

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* Read before the Section on Pathology and Physiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Lindau, Arvid: Acta path. et microbiol. Scandinav., 1926, supp. 1, pp. 1-128.

The diagnosis was glioma cerebelli with adjacent cyst.

Case 2.—A man, aged about 55, entered the examining room of the hospital during the night, complaining of dizziness, vomiting and headache. He was slightly dazed and showed some lack of muscular coordination. During the course of an examination by the intern, he lay down and in a few moments died of respiratory paralysis.

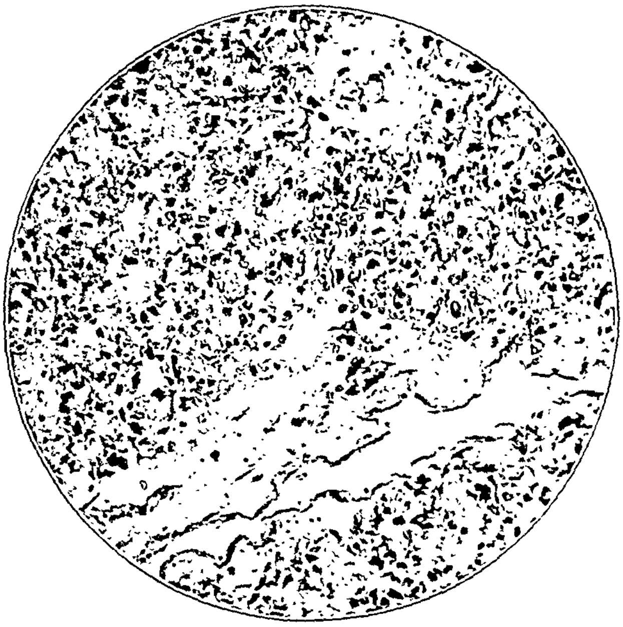

Fig. 1 (case 1).—Glioma in the wall of the cyst; reduced from a photomicrograph with a magnification of 200 diameters.

An autopsy was performed by the medical examiner, and a smooth walled, transparent cyst was found in the right lobe of the cerebellum, with a glistening, white lining, except for one small area about 2 by 1.5 by 1 cm., at which point there was a nodule of small vessels. The fluid was examined for booklets or other evidences of parasites, but none were found. The cyst measured 4 by 3 by 3 cm. and did not connect with the fourth ventricle. There was no meningitis. The microscopic examination of the small nodule showed a vascular mass of tissue containing a few spherical nuclei, regular in form but with poorly defined cell walls. Blood vessels, although very small, formed what may be considered an angiomatous nodule. (fig. 3).

The diagnosis was angioma cerebelli with adjacent cyst.

Case 3.—A man, aged 38, admitted to the medical service, May 17, 1921, in charge of Dr. Samuel W. Lambert, complained of headache, dizziness and disturbance of vision of ten months' duration. In July, 1920, he had suffered from severe frontal headache and pain between the eyes. At the same time his vision became disturbed and he could not recognize colors. He had had slight vertigo and had vomited only once. There was moderate improvement for three months, but one month before admission he became much worse, with one period of partial unconsciousness for from two to three hours. His pulse was 72 and regular. There was a fine fibrillary tremor of his tongue; the knee jerks were equal and active; the abdominal reflexes were present, and there was no Kernig sign nor Babinski reflex. He showed a papilledema of both eyes, with hemorrhages. Death occurred suddenly two weeks after admission with a pulse of 40 and respirations of 12, the patient becoming unconscious only a few moments before death.

Postmortem examination showed that the lingula of the cerebellum was forced down into two tonguelike depressions around the medulla, nearly filling the foramen magnum (fig. 4). More of this tissue extended downward from the right. The right lobe was much larger than the left and was almost entirely converted into a thin-walled cystic cavity containing thin yellow fluid and lined by a white membrane, appearing to be only flattened cerebellar tissue. In one small area, 1 by 0.5 by 0.5 cm., in the inferior and outer wall, was a small pinkish area of tissue resembling granulation tissue. The lateral ventricles were greatly distended and the convolutions flattened. The vessels of the pia arachnoid appeared very small and were nearly empty. The fluid in the cyst gave a negative butyric acid test, did not reduce Benedict's solution, and contained only a few cells having a large nucleus and a large amount of cytoplasm, presumably the pseudoxanthomatous cells of Lindau.

Microscopic examination of the small nodule showed that the lesion was an angioma, probably an hemangioma, as most of the spaces contained red blood cells. The sinuses varied greatly in size; the smaller ones, which closely resembled the cutaneous capillary hemangiomas, were lined with small cells having plump, oval, darkly staining nuclei. The larger sinuses possessed flatter nuclei of the same general appearance. The nodule was fairly cellular with some of the cells apparently lying free in the tissue between the capillaries, as is usually seen in these tumors in infancy (fig. 5). There was a little gliomatous tissue lining the cyst, but no organized cellular or epithelial lining, no necrosis nor degeneration products. A few flattened cortical cells of the cerebellum formed the outer portion of the wall. The other organs showed no lesions of importance, except a small tumor in the spleen 2 cm. in diameter, paler than the surrounding tissue, sharply defined, and with a homogeneous fibrous composition. Section of this showed that it was an angioma with small vascular spaces, smaller than the sinuses of the spleen, but otherwise somewhat resembling them. (fig. 6).

Case 4.—A man, aged 31, admitted, April 18, 1924, to the medical service of Dr. Samuel W. Lambert, complained of dizziness of three weeks' duration, vomiting every half hour for two days, and occipital headache which was relieved somewhat by vomiting. The symptoms had begun three weeks before with great intensity so that he was much prostrated at the end of five days. He had tingling in all his fingers and toes, except the thumbs and first toes. He had been unable to void for twenty-four hours. Neurologic examination elicited a double Kernig sign, nystagmus, increased knee jerks and a left Babinski reflex. Lumbar puncture was done with the removal of 40 cc. of clear fluid under definitely increased pressure. The cellular content, the Wassermann reaction, and the sugar and colloidal gold curve were normal. The patient became comatose four days after admission and died, April 23.

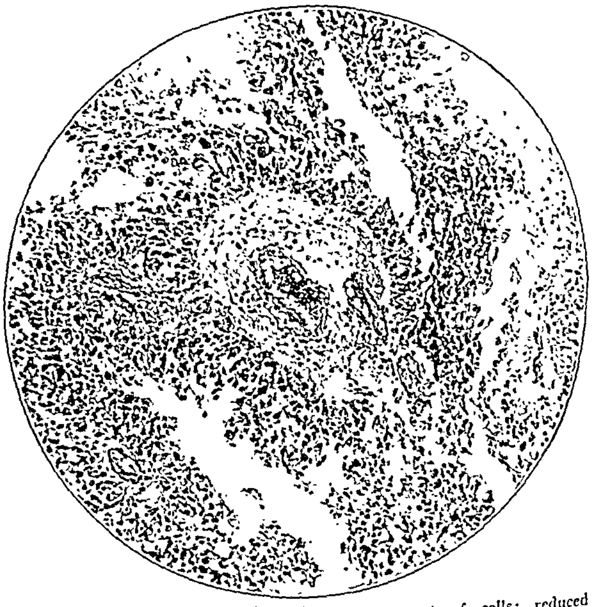

Fig. 2.—Same showing perivascular arrangement of cells; reduced from a photomicrograph with a magnification of 200 diameters.

Autopsy showed that the leptomeninges and the spinal fluid appeared normal, without evidence of infection. The lateral ventricles were slightly distended; the third ventricle much more so. There were no other changes noted in the cerebral hemispheres. The cerebellum showed flattening of the convolutions and on the upper left side a cyst, which was torn in removal with the escape of clear yellow fluid. Section of this showed it to be 5 by 5 by 4 cm., with a delicate, yellowish lining, and a small, soft, vascular area about 1.5 by 1 by 1 cm., protruding from one side into the cavity. The thick gelatinous fluid remained in the neighborhood of the nodule. The aqueduct of Sylvius appeared to have been compressed. Microscopic sections of the nodule in the cyst wall showed a zone of vascular glia in which the vessels were surrounded by a large number of plasma cells and lymphocytes which distended the Virchow-Robin spaces. There were numerous eosinophils and a few polymorphonuclear neutrophils. The intervening cells were mostly glial. Lipoid-containing cells were numerous. There was no indication that these were neoplastic. The lesion in some ways suggested a subsiding infection from the extensive perivascular involvement, but the clear fluid and the thin, nonindurated lining differentiated it from a chronic abscess. On the other hand, it could not be clearly designated an angioma. The absence of pigmentation and of thrombosed vessels excluded hemorrhage. Also the short history and the age of the patient, and the absence of a tumor or parasites, with some evidence of exudation, suggested that we were observing the so-called simple cyst in the period of its formation. Had the patient outlived the early period of high intracranial pressure, it seems probable that a lesion of this type would have been converted into a simple cyst (fig. 7).

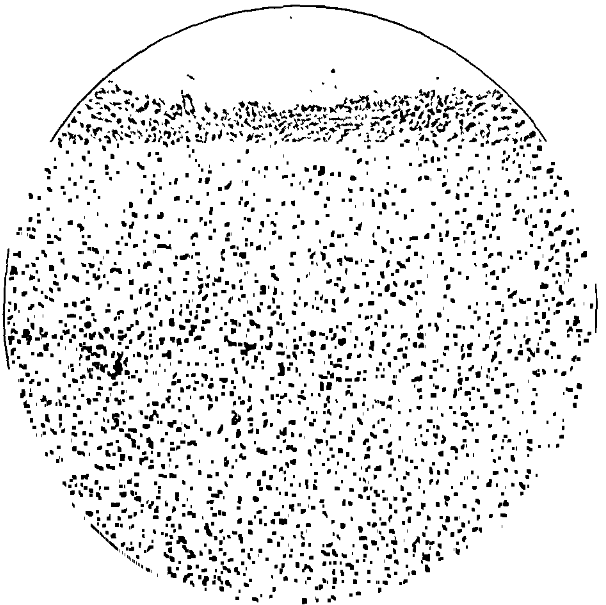

Fig. 3 (case 2).—Cellular area in the wall of the cyst, showing vascular glia with some spherical nuclei, probably phagocytic cells; reduced from a photomicrograph with a magnification of 200 diameters.

The diagnosis was a simple cyst of the cerebellum, of unknown etiology.

CASE 5.—A man, aged 57, who entered the examining room of the hospital at 4 a. m., Nov. 13, 1925, complained of epigastric pain which had been severe for three hours. He had been working steadily up to this time, and the day before he had applied for a civil service examination but was excluded on account of his age. He had eaten heavily that evening and returned home with an abdominal pain and vomited. His temperature was normal; the blood pressure was 180 systolic and 100 diastolic; the pulse was 90. The heart did not appear to be enlarged. There was no dyspnea nor cyanosis and the lungs appeared normal. After resting a few moments in the office he rose, staggered and fell; his pulse became very weak and alternating and respirations two a minute; he complained of extreme dizziness and died suddenly.

The autopsy, which was done three days later because of legal complications, showed the usual postmortem changes with poor preservation of the tissues. There was a slight depression in the right frontal bone 3 by 2 by 1 cm., and in the right temporal region the dura was adherent to the cortex and leptomeninges and had to be cut away to avoid tearing the brain. Beneath this was a fluctuating, thin-walled cyst torn on removal of the dura, with the escape of clear yellowish fluid, leaving a cavity sharply depressed, beneath and in front of the right insula. The meninges were thickened and opaque, with areas of yellowish brown discoloration apparently due to hemosiderin. The leptomeninges over the entire frontal portion of the right hemisphere showed diffuse yellowish areas of opacity but no fresh exudate or blood. Examination of the cyst on section showed it to extend to within 0.5 cm. of the lateral ventricle, but not to connect with it (fig. 8). The lining was smooth and white; the ventricles were not distended. Microscopic examination of the wall of the cyst showed that it consisted of the flattened and atrophic cortical layers of the cerebrum, but the large ganglion cells were atrophic, and the greater portion of the area was composed of neuroglia with small glial nuclei. There was a very delicate covering membrane, apparently pia, loosely attached to the surface (fig. 9). Section of the blood vessels on the surface showed them to be numerous and thick-walled but not thrombosed nor atheromatous.

The diagnosis was cyst of right temporofrontal cortex, probably congenital. This lesion appeared to be a developmental defect because of the absence of inflammatory or vascular changes within the cerebral cortex, the infrequency of ganglion cells, and the delicate lining of pia which extended into the cyst. The question of interest is whether the thickened and adherent meninges may have included an hemangioma and the bony defect in the frontal bone represented the results of an old trauma. In many respects this resembled the cavernous angioma of the meninges described by Dandy.

The only other development lesion observed post mortem was a hypoplasia of the penis, which was small and somewhat deformed. The kidneys showed a moderate degree of chronic interstitial nephritis and a little dilatation of the tubules between the cortical wedges of tissue. This was not at all advanced and the nephritis did not clinically account for the sudden death nor seem to pathologically. The coronary arteries were rather large and patent and showed no calcification nor thrombi.

It was observed by Lindau that cysts of the cerebrum which were pathogenically dissimilar from those of the cerebellum caused the same clinical syndrome and he designated the cases described by Mills and Fraser,[2] Borchardt,[3] and Hildebrand,[4] which presented fluctuating cysts in the membranes of the cerebrum, as cases of meningitis circumscripta cystica. Case 5 may properly be so designated, but this is a descriptive term rather than an explanation of the etiology and it is better considered a cyst complicated by an angioma of the leptomeninges.

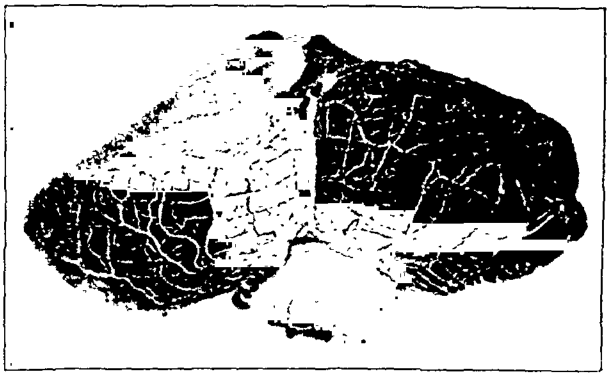

Fig. 4 (case 4).—Posterior aspect of cerebellum and medulla, showing enlarged right lobe and cerebellar tissue surrounding the medulla.

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2. Mills and Fraser New York M. J., 1908
3 Borchardt Beitrage zur Symptomatologie und Diagnostik der Hirngeschwulste, 1881
4 Hildebrand, O Arch f klin Chir **100**, 1912

The mode of death of these patients is important from the clinical point of view, as it coincides to a large extent with earlier observations made on patients with cerebral cysts. Lindau cites at least sixteen cases in which sudden death occurred, although it is well known that patients with brain tumors more often than not die a lingering death.[5] Apparently the fluctuations in pressure are greater in cases of cysts than in the case of even the most vascular tumors. A considerable number of patients have died while being prepared for operation; others have been found dead in bed, and several others have died, such as patients 2 and 5, at the time they were being examined for admission to the hospital, while their general condition was still good.

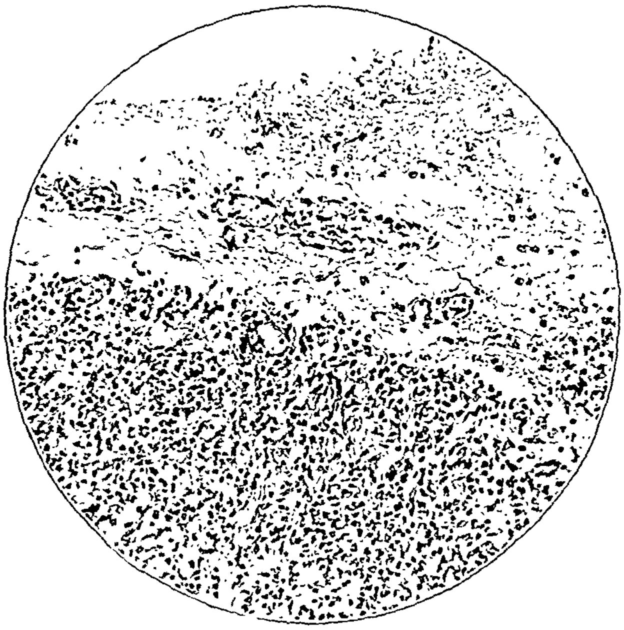
Fig. 5 (case 4).—Hemangioma in the wall of the cyst; reduced from a photomicrograph with a magnification of 200 diameters.

The textbooks of legal medicine do not give much attention to either brain tumors or cysts as a cause of death. The cerebral conditions usually recognized in the nervous system as causes of sudden death are said by Peterson, Haines and Webster[6] to be less frequent than respiratory or cardiac causes. In the nervous system all forms of apoplexy, chronic hemorrhagic pachymeningitis, with or without extensive terminal hemorrhage, acute purulent meningitis, epilepsy, uremia, alcoholism and status lymphaticus, when complicated by epileptical attacks, are the accepted causes, according to these writers. Drennan[7] has reported two interesting medicolegal cases in which death was due to an acute hydrocephalus with edema of the cortex, believed to be due to cysts of the choroid plexus which blocked the third ventricle. These cysts were small, and such as are commonly seen in the lateral ventricle. If more autopsies were done on the brains in cases of sudden death, many of which have previously been assumed to be myocardial, much more information might be obtained on this point. Cysts are, no doubt, a great rarity in any case. Only a few, probably not more than three, of the reported cases have been found as an accidental pathologic discovery in a person dying of lobar pneumonia or some other fatal disease.

Other clinical observations of interest are the variations in pressure on the optic nerve observed in these patients, the first showing only haziness about the disk, the second showing a marked papilledema, and the third, normal fundi, although the cyst in each of these cases was so large as to occupy practically the whole of one cerebellar hemisphere. The compression of the cerebellum around the medulla and in the foramen magnum is also an interesting observation in connection with case 4, but syncope did not immediately follow the lumbar puncture that was performed five days before. Two of the three patients in this series who died suddenly had not been subjected to lumbar puncture.

Lindau recognized six types of cerebellar cysts, as follows:

1. Dermoid cysts and cholesteatomatous cysts.
2. Cysts due to softening, following hemorrhage or malacia.
3. Parasitic cysts.
4. Cysts in connection with a tumor.
5. Simple cysts.
6. Cysts which have a direct connection with the fourth ventricle.

Of the 275 collected cases, Lindau found that they comprised 10 per cent of all cerebellar tumors, and that the majority of them were simple cysts, of the etiology of which he confesses a complete ignorance. Of the dermoid cysts only ten have been reported, and of the parasitic cysts there are also only a few, ten according to Glauberman.[8] Lindau's chief interest centered about the cysts, which were apparently simple but which on investigation were found to contain very small hemangiomas in some portion of the wall and were associated with hemangiomas of the other organs. Lindau showed that these had a tendency to occur in the same families as do the retinal angiomas. Of these he collected twenty-four from the literature and

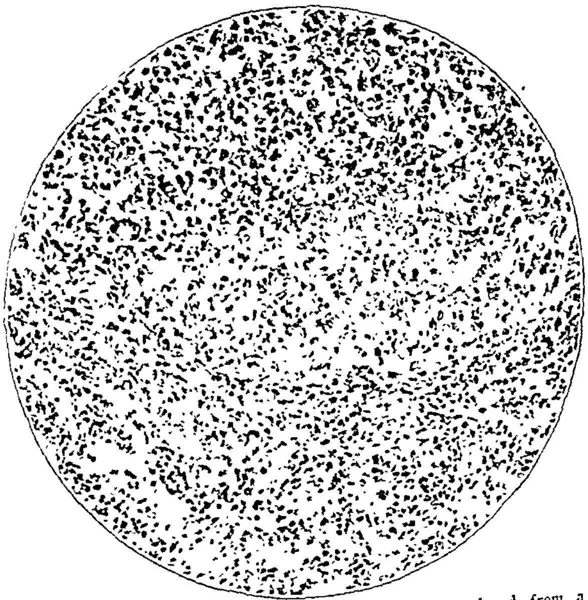
Fig. 6 (case 4).—Spleen containing hemangioma; reduced from a photomicrograph with a magnification of 200 diameters.

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[5] Grinker, in discussion on Bassoe and Apfelbach.

[6] Peterson, Frederick; Haines, W. S., and Webster, R. W.: Legal Medicine and Toxicology, Philadelphia, W. B. Saunders Company, 1923.

[7] Drennan, A. M.: Brit. M. J. 2: 47 (July 13) 1929.

[8] Glauberman, L. M.: Ztschr. f. d. ges. Neurol. u. Psychiat. 116: 15, 1928.

added sixteen cases of his own. Four of the latter presented also small angiomatous tumors in the medulla; nine of them, multiple visceral angiomas; nine, pancreatic cysts; ten, renal cysts, and six hypernephromas in the suprarenal or kidney. Adenoma of the kidney has also been described but is so frequent that this can hardly be considered more than a coincidence. The following year, 1927, Lindau[9] supplemented his paper by adding reports on two more patients with cerebellar cysts, angiomatous retinas and visceral cystic tumors. He further mentions the cases of Hammer,[10] Rochat[11] and Schuback,[12] which were not included in his first paper.

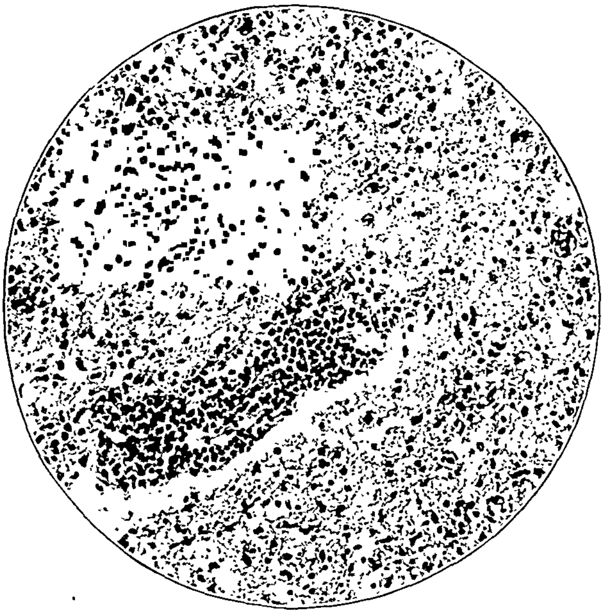

Fig. 7 (case 4).—Cellular tissue, probably inflammatory, found in the wall of the simple cyst; reduced from a photomicrograph with a magnification of 200 diameters.

Angiomatosis of the retina, known as von Hippel's disease, is a form of angiomatosis unrecognized until 1894, when Collins[13] first described the microscopic pathology and designated the lesion as angiomatosis. It was observed in 1895 by von Hippel who, not understanding its nature and finding it as a very minute nodule at the periphery of the retinal field, thought it a chronic inflammatory lesion, possibly a tubercle; but after repeated observation of the patients, he described the condition fully in 1903. Czermak[14] in 1905 also demonstrated the lesion. In all, there have been only a small number of reported cases, and only fourteen of the older ones were examined microscopically. Brandt[15] collected forty of these in 1921 but regarded them as endotheliomas rather than as true hemangiomas. Recently Lindau, Cushing and Dandy have searched assiduously for such lesions in their patients with brain tumors, and Cushing and Bailey[16] have contributed greatly to their recognition. Twenty per cent of the reported cases of von Hippel's disease have presented intracranial complications, but only one of Lindau's cases showed the angiomatous lesion both in the retina and in the cerebellum. The skin angiomas have never been found to be associated with the cerebellar cysts, although they are not infrequently to be found with meningeal angiomas. The latter were collected in 1922 by Lechner,[17] who concluded that many more of them are cerebral than cerebellar, but the knowledge of them has been greatly increased as the result of the surgical pathologic records of Dandy,[18] who has been able to study many of them while they were pulsating and to establish their vascular relations.

The improvement in intracranial surgery brought to clinical importance a knowledge of these lesions, and following the publication of Bruns's paper in 1904 this became an important topic in surgical pathology, whereas before it had had only a pathologic interest.

Sachs,[19] in 1927, reported a case of cystic tumor aspirated in 1920 and again in 1922. Eight months after the second aspiration, 120 cc. of fluid was removed from the cyst, and a tumor was removed from between the cerebellum and the medulla. Although the patient was in coma when operated on, she remained well from October, 1923, to the publication of the paper in 1927.

Schley,[20] in 1927, reported two cases of cerebral angioma, one a subpial tumor of the left cerebral convexity in a patient, aged 52, presenting jacksonian attacks following typhus fever. This formed a cortical cyst 4.4 by 2.5 by 2.5 cm., with smooth reddish brown pigmented walls; also a capillary hemangioma of the cortex of the cerebrum in a patient of 48 who had presented symptoms of manic depressive insanity for ten years. For four months she had had headache and later choked disks, with acute symptoms of increased intracranial pressure for two months; also a cerebellar cyst the size of a hen's egg and without ependymal lining, but with a glioma in the wall. This was a patient, aged 34 years, presenting symptoms of headache, dizziness, ataxic gait and disturbance of vision, increasing for six months.

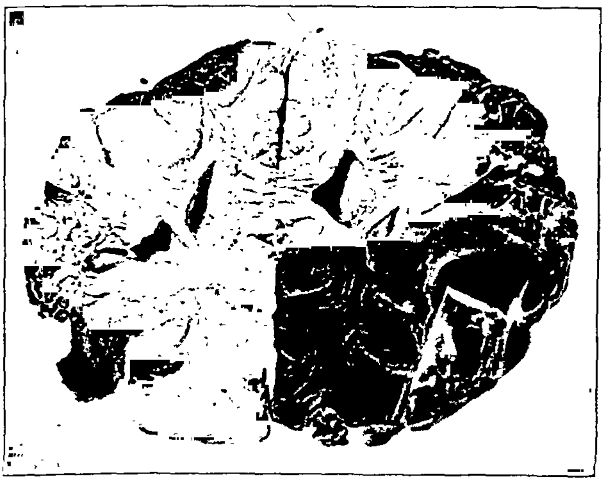

Fig. 8 (case 5).—Cyst showing smooth wall lined with pial membrane.

Cushing, in 1928, described four cases of cerebellar cysts with a small angiomatous mural nodule (cases 18, 19, 20 and 24) and in the same year reported on a sur-

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9. Lindau, Arvid: Acta ophth. **4:** 193, 1927.
10. Hammer, E.: Nederl. tijdschr. v. geneesk. **2:** 785 (Aug. 13) 1927.
11. Rochat, G. F.: Klin. Monatsbl. f. Augenh. **78:** 601 (May) 1927.
12. Schuback, A.: Ztschr. f. d. ges. Neurol. u. Psychiat. **110:** 359, 1927.
13. Collins, E. T.: Tr. Ophth. Soc. U. K. **14:** 141, 1894.
14. Czermak, W.: Ber. u. die 32 Ophth. Ges., 1905, pp. 184, 335.
15. Brandt, Rudolph: Abstr. Arch. f. Ophth. (von Graefe's) **106:** 127, 1921.
16. Cushing, Harvey; and Bailey, Percival: Arch. Ophth. **57:** 447, 1928; Tumors of the Brain Arising from Its Blood Vessels, Springfield, Ill., Charles Thomas, 1928.
17. Lechner, Ellen: Beitr. z. klin. Chir. (Brun's) **125:** 174, 1922.
18. Dandy, W. E.: Venous Abnormalities and Angiomas of Brain, Arch. Surg. **17:** 715 (Nov.) 1928.
19. Sachs, Ernest: South. M. J. **20:** 171 (March) 1927.
20. Schley, Wilhelm: Virchows Arch. f. path. Anat. **265:** 665, 1927.

gical patient, aged 30, with von Hippel's disease who had suffered from suboccipital headache for two months with nystagmus, positive Romberg's sign, and an unsteady gait. A cerebellar cyst with xanthochromic fluid and an hemangiomatous tumor nodule in the wall were found. This was successfully removed, and the patient was discharged in a month. Cushing regarded the lesion as even more rare than did Lindau. He has found that the contents of the cysts may resemble blood plasma and believes that an active transudation takes place from the vessels. He found, as the most frequent inaugural symptoms, suboccipital tenderness or discomfort; stiff neck, and headache with vomiting. Ocular symptoms develop much later. This is somewhat in contrast to the frequency of vomiting in cerebellar tumors, which he regards as an early symptom.

Dandy, in 1928, reported six cases of angiomatous cysts of the cerebellum. One of the patients died after operation, one died suddenly on the way to the hospital and four were successfully operated on.

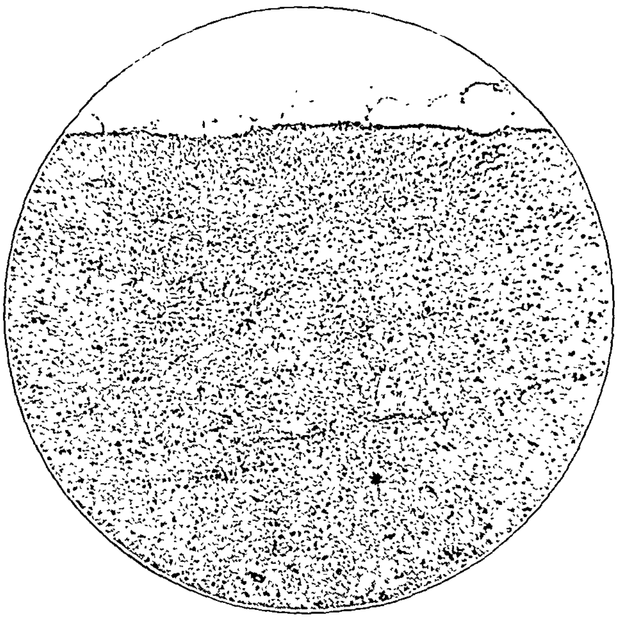

Fig. 9 (case 5).—Cyst showing smooth wall lined with pial membrane; reduced from a photomicrograph with a magnification of 100 diameters.

Glauberman described a simple cyst of the vermis cerebelli in which they have been said never to occur, in a patient, aged 19, seen by him, Feb. 19, 1926. The patient was suffering from headache, ataxic gait, diplopia and choked disks. These symptoms had begun following a severe blow on the head from a heavy pumpkin in October, 1925. He was observed, and repeated lumbar, suboccipital and cisternal punctures were done. A severe, acute meningitis, purulent but aseptic, followed. In August, 1926, he died suddenly with cyanosis, pulmonary edema, enuresis and respiratory paralysis. At autopsy the cerebellum was found to contain a cyst in the lower two thirds of the vermis, 3 cm. in diameter, compressing and narrowing the aqueduct and producing a marked internal hydrocephalus. It did not connect with the fourth ventricle. The wall of the cyst was lined with glial fibers only. The author regarded the cyst as congenital and the meningitis as traumatic in origin.

Sargent and Greenfield.[21] in 1929, described seven angiomatous cysts and two gliomatous cysts. Two of these were successfully operated on and the angiomas removed. One patient who died a year after a decompression was found to have had bilateral angiomatous cysts, one in each of the lateral lobes.

Shapiro's [22] patient, a man, aged 50, showed advanced signs of a cerebellar tumor with mental deterioration and apathy and died of a pulmonary infection. The cyst, when opened, showed the angioma to be relatively large and bulging into the cavity.

Davidoff [23] has contributed one more report of a typical cyst found in a patient who also died a lingering death, with symptoms for two years, and with mental confusion, hallucinations and excitement.

It is therefore apparent that the occurrence of cysts of the brain, cystic tumors, and especially the angiomas, is becoming much better understood. The collected reports of cerebellar cysts number well over 300, and the angiomatous ones alone probably number about 65. They occur most frequently in early adult life, from 20 to 30, but have been seen in patients over 50. Prodromal symptoms have been noted, usually for a comparatively short time, as in several patients who have died before receiving any medical attention. The average duration of such symptoms in the surgical cases has varied from two months to a year and a half. The total duration of the disease untreated or with simple aspiration of the cyst is usually short—often less than a year, or at most two. It is obvious that the neoplastic tumors may not differ in this respect from the simple cysts, since death is usually due to the volume of the fluid and not necessarily to infiltration.

The inaugural symptoms are likely to be headache, suboccipital tenderness, discomfort or stiff neck and slight ataxia, while the later ones are vomiting and others due to pressure on the motor and optic tracts.

The cysts often reach a considerable size, being as large as one lobe of the cerebellum, or larger. Even an experienced pathologist must be careful, in an embalmed body, to differentiate the holes resulting from formaldehyde injection from an antemortem lesion.

The cysts are easily recognized by their thin but definite walls, absence of induration, such as occurs in achronic abscess, and the glistening white lining on which a nodule may or may not be visible. Most of them are in the white matter and do not involve the dentate nucleus. The angiomas, if present, usually occupy the lower, inferior and outer portion. They may be impossible to identify at operation unless they can be felt, and they are so small as to require microscopic examination in some cases.

Trauma has not been shown to have any constant relation to the symptoms or cyst formation, but a few patients have no doubt suffered more headache and stiff neck after a blow on the head or a fall. The other theories as to causation are: congenital, and hence related to syringomyelia; degeneration of a tumor, and transudation of blood plasma from the vessel walls. Only a few have been connected with the fourth ventricle, although this was one of the earliest explanations of their formation.

CONCLUSIONS

1. The present paper is a presentation of the symptoms, course and pathologic observations in four patients with cerebellar and one with a cerebral cyst.

2. Three of these patients died suddenly, having been active up to a short time before death.

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[21] Sargent, Percy; and Greenfield, J. G.: Brit. J. Surg. **17**: 84 (July) 1929.

[22] Shapiro, Phillip: Hemangioblastoma of Cerebellum with Cyst Formation (Lindau's Disease), Arch. Path. **8**: 915 (Dec.) 1929.

[23] Davidoff, L. M.: Am. J. Path. **5**: 141 (March) 1929.

3. The series includes three angiomatous cysts, with an hemangioma of the spleen; one congenital cerebral cyst associated with a cavernous angioma of the leptomeninges, and one gliomatous cyst.

4. Attention is drawn to the fact that such cysts may be present and even be a cause of sudden death in apparently healthy persons.

St. Luke's Hospital.

ABSTRACT OF DISCUSSION

DR. LESLIE T. GAGER, Washington, D. C.: These cases of Dr. Knox especially interest the clinician, who naturally thinks first, if not exclusively, of the more familiar cerebral vascular lesions: embolism, thrombosis and hemorrhage. Two examples of brain cyst have come to my attention in which evidence of intracranial pressure was present during life. In the case of a woman, aged 23, which I mention through the courtesy of Dr. Ralph G. Stillman, there had been headache, pain over the left eye and failing vision for two months. Her gait was unsteady, with a tendency to tilt the head and to fall to the right. There were bilateral choked disks. Attacks of general rigidity of the body occurred, in one of which she stopped breathing. A cyst, 5 cm. in diameter, lined with cells resembling glial cells and containing dark amber clear fluid, was found within the white substance of the left lobe of the cerebellum. Last winter Dr. L. C. Milstead reported to the Washington Society of Pathologists the case of a white woman, aged 24, who was able to drive her automobile to the hospital. She was put to bed and, in the recumbent position, in a few hours' time went into coma and died. Following influenza nine months before, she began to have severe supra-orbital headaches with vomiting, yet an ophthalmologic examination one week before hospital admission, which was for tonsillectomy, was reported negative. For seven hours the unconscious woman was kept alive by artificial respiration. Evidence of constitutional disease was lacking and at necropsy the significant finding was a pedunculated ependymal cyst in the third ventricle, of the size of a cherry. The influence of posture in this patient suggests the importance of localized changes in circulation in the brain as well as, for example, in the conduction system of the heart.

ROENTGEN DIAGNOSIS OF ASCARIASIS*

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In September, 1929, during a routine roentgen gastro-intestinal examination of a child, certain signs, described here, were correctly diagnosed as being caused by *Ascaris* in the intestinal tract. This led to a study of the English literature, and no reference to this phenomenon was found, so experimental work was started on a group of children infested with *Ascaris*.

A subsequent search of the foreign literature has revealed several references. Fritz,[1] in 1922, was the first to recognize the roentgen appearance of intestinal ascariasis, using a barium contrast meal. He described two cases. Schinz,[2] in 1924, added another case, while Fritz,[3] in the same year, again reported several additional cases. Busi,[4] in 1924, Giovetti,[5] in 1925, Lapenna,[6] in 1926, and Vietti,[7] in the same year, all reported cases, Vietti having a series of sixty-five. Hugo Laurell,[8] in 1927, covered the entire field of the clinical manifestations of ascariasis in a comprehensive monograph, showing many beautiful films of the barium-filled small intestine with the typical observations described by the former authors. In 1927, Muzii,[9] Vajano[10] and Pansdorf,[11] writing separately, described several cases. Fanardshew,[12] in 1929, reported two.

A brief review of the life cycle of an ascarid will be helpful in understanding the problem. According to Cort, Otto and Spindler,[13] the ova from polluted soil are ingested and hatch in the small intestine. The larvae then migrate through the intestine wall, enter the circulatory system and are carried to the capillaries of the lungs. Here they develop in the air sacs, giving rise to pulmonary changes, pass up the bronchial tree, and are swallowed. After liberation from the lung, about six weeks is required for maturity. A constant supply of fresh larvae is therefore being supplied by the lungs, even after an anthelmintic has cleared the intestinal tract of the parasites. Consequently, to rid a patient completely from *Ascaris* takes considerable time and several courses of treatment.

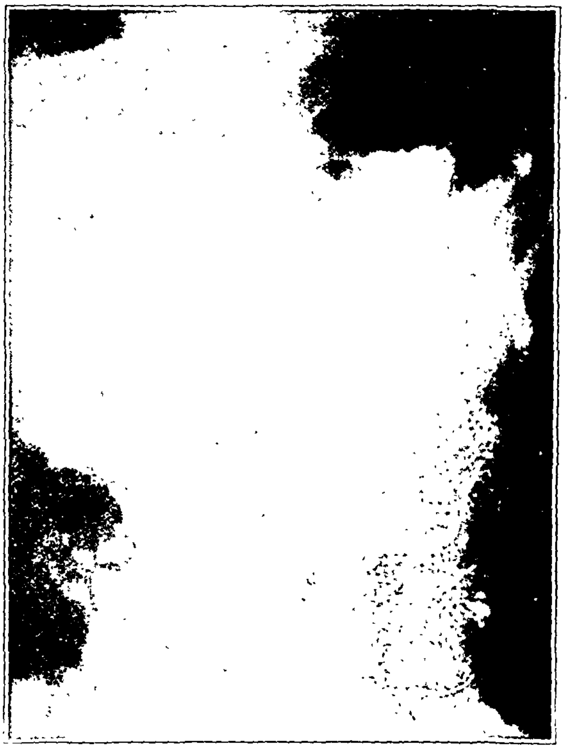

Fig. 1.—Filling defects caused by ascarids in barium-filled jejunum of a child. The film was made immediately after ingestion of a barium cereal meal.

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* From the Department of Roentgenology, University of Virginia Hospital, University, Va.

* Read before the Section on Radiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[1] Fritz, Otto: Askariden des Magendarmtraktes im Röntgenbild, Fortschr. a. d. Geb. d. Röntgenstrahlen **29:** 591-593, 1922.

[2] Schinz, H. R.: Askariden im Röntgenbild, Deutsche Ztschr. f. Chir. **184:** 105-109 (March) 1924.

[3] Fritz, Otto: Askariden im Röntgenbild, Fortschr. a. d. Geb d Röntgenstrahlen **32:** 650-665, 1924.

[4] Busi, A.: Semeiotica radiologica degli ascaridi nel tubo digerente, Bull. d. sc. med. **96:** 159-160, 1924.

[5] Giovetti, V.: Di un altro caso di ascaride nel tenue scoperto radiologicamente, Radiol. med. **12:** 669-674 (Oct.) 1925.

[6] Lapenna, M.: Sindrome radiologica di stenosi duodenale da ascaridi lombricoidi, Radiol. med **13:** 438-441 (June) 1926.

[7] Vietti, M: Ascaridi ed ascaridiosi, Radiol. med. **13:** 546-557 (Aug.) 1926.

[8] Laurell, Hugo: Askaridiasis, Upsala läkaref. förh. **32:** 73-257 (Feb.) 1927.

[9] Muzii, M.: Diagnosi radiologica dell'ascaridiosi, Policlinico (sez. prat.) **34:** 83-85 (Jan. 17) 1927.

[10] Vajano, D. Contributo alla conoscenza dell'ascaridiosi del tubo digerente, Arch. di radiol. **3:** 409-417 (March-April) 1927.

[11] Pansdorf, H: Ueber Askaridennachweis im Röntgenbild zur Klärung unbestimmter abdomineller Beschwerden, sowie über ein zweckmässiges Verfahren der röntgenologischen Dünndarmdarstellung, Fortschr. a. d. Geb d. Röntgenstrahlen **36:** 1091-1095 (Nov.) 1927.

[12] Fanardshew Weitere Beobachtungen über Askaridiasis im Röntgenbild, Röntgenpraxis **1:** 231-233 (May 1) 1929.

[13] Cort, W. W., Otto, G. F., and Spindler, L. A.: Studies on Ascariasis in Virginia, South. M. J. **22:** 608-614 (July) 1929.

Our interest in ascariasis started with the following case: A boy, aged 13 years, was admitted to the University of Virginia Hospital, Sept. 6, 1929, with a diagnosis of subphrenic abscess. This was cleared up surgically, and after operative recovery, cholecystograms were made and a contrast meal was given in an attempt to find the original focus for the abscess. A nonfunctioning gallbladder was demonstrated. The contrast meal showed a deformed duodenal bulb, interpreted as due to adhesions. On the films, made within a few minutes after ingestion of the barium cereal meal (fig. 1), two long cylindric filling defects were noted in the loops of the jejunum immediately beneath the stomach. At six hours, the contrast meal had passed entirely out of the jejunum, and two long stringlike shadows were seen (fig. 2). A rather hasty search of the literature gave no light as to the nature of these unusual shadows, but after much thought a diagnosis of intestinal ascariasis was made. Repeated stool examinations following this report were negative for ova. On operation for removal of the nonfunctioning gallbladder, the surgeon felt the parasites through the intestinal wall and made them move by pinching them, thus dispelling the last lingering clinical doubt as to the correctness of the roentgen observations. Our interpretation of the filling defect, followed by the stringlike shadows, was that at first the parasite displaced the barium and then ingested some of it, which stayed in the enteric canal of the ascarid after the jejunum had emptied.

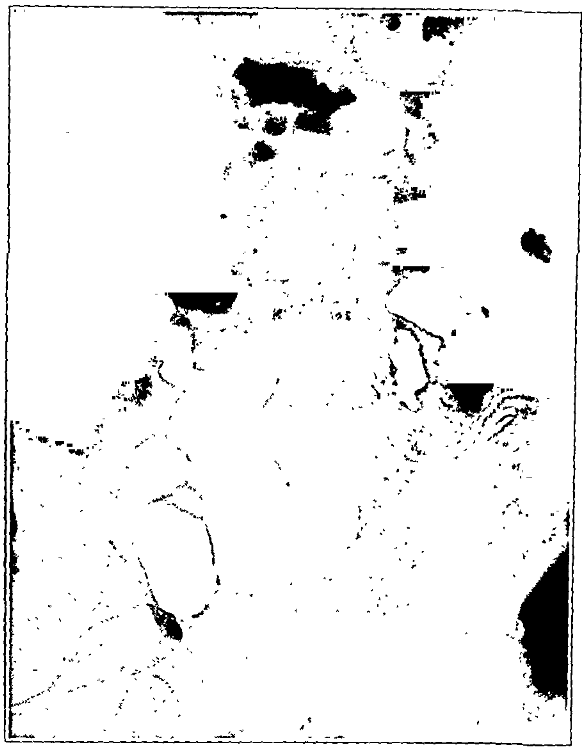

Fig. 2.—Same case as in figure 1. Film at six hours, shows barium-filled enteric canals of ascarids.

Following this, a series of sixty patients with stools positive for ascaris ova were studied roentgenologically. Three cases were picked up accidentally. At first, films were made every hour after ingestion of the barium cereal meal, up to the seventh hour. A few cases convinced us that films made at one, two and four hours would demonstrate any evidence of *Ascaris* which would be obtained by using a longer series. In the recent cases, we made films only at the three periods previously noted.

The sixty-three patients consisted of fifty-nine children and four adults. All had positive stools except in the three cases which were picked up accidentally. One of these was the case of the boy described before. A second case was found in the course of a routine gastro-intestinal examination of an adult. The third was a child on whom films were being made to demonstrate a normal gastro-intestinal tract. Of the fifty-seven children with stools positive for ova, fifty-four showed the very definite typical roentgen appearance described in the first case, and three were classified as negative. Of the three adults with positive stools, only one showed typical roentgen observations, two being negative.

The roentgen appearance is apparently perfectly typical. At first there are cylindric filling defects, usually in the jejunum, from 5 to 8 mm. in diameter and up to from 15 to 20 cm. in length. Films made some time after ingestion of the barium by the patient show stringlike shadows in the central portion of the filling defect, these strings being interpreted as the barium-filled enteric canal of the parasite (fig. 3). An interesting incidental observation has been that the parasites will not ingest the barium if the patient has eaten prior to drinking the contrast meal, and consequently the enteric canals will not be outlined. Our explanation for this is that if the patient has eaten food prior to the administration of barium, the enteric canal of the parasite will be filled and no barium will be ingested by the worm. On account of this, we have withheld food as though for a routine gastro-intestinal examination.

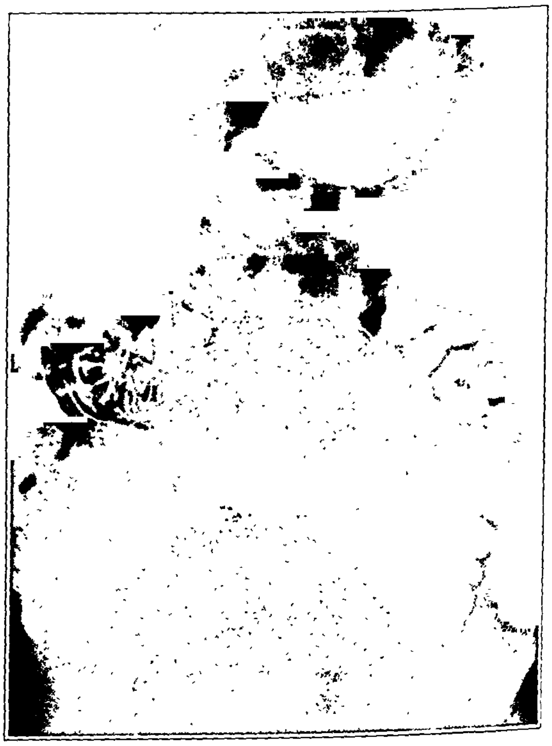

Fig. 3.—Typical appearance of ascarids in barium-filled jejunum, showing filling defects and barium-filled enteric canals of parasites.

COMMENT

In our series of cases only patients reported as having stools positive for ascaris ova were examined. In these the roentgen signs have been constant and have been present in a high percentage of infested children, only three of a series of fifty-nine failing to give the typical appearance. Our series of adults has been too small to give any idea as to the diagnostic accuracy. It is obvious, however, that the parasites can be more readily recognized in the relatively small jejunum of the child than in the larger bowel of the adult, since the size of the ascarid is constant. In our experimental work, we found two cases in which there were positive roentgen observations, with negative stool examinations. In our next study, patients will be taken from the clinic and have both stool and roentgen examinations made. In this manner the accuracy of the stool examination can be checked, in cases in which the stool has been reported negative for *Ascaris.* It is our belief that the recognition of the roentgen signs will be of the most value, not in *supplanting the stool examination* but in supplementing it in doubtful cases, and in demonstrating *Ascaris* in referred gastro-intestinal cases in which the referring physician has not made a stool examination. In certain rural districts, ascaris infestation is very common. In Cort's series, the stools of 2,152 individuals of Wise County, Va., were examined, showing 48.2 per cent positive for *Ascaris.* Other rural sections show almost as high a percentage. In general practice, routine microscopic stool examinations are far from routine; so in view of the frequent incidence of *Ascaris,* the roentgenologist should watch carefully for the easily demonstrable evidence on routine films made of the gastro-intestinal tract. It may prove advisable to make an additional film either one or two hours after ingestion of the barium, particularly in patients coming from rural sections.

Results of Observations

	Children		Adults		Totals	
Stools positive	57		3		60	
Roentgenogram positive		54		1		55
Roentgenogram negative		3		2		5
Stools negative	*2*		1		3	
Roentgenogram positive		2		1		3
Total cases		59		4		63

Much has been published in recent years regarding the clinical importance of ascaris infestation, and it is not in the province of this contribution to touch on this field. Suffice it to say that during the last few years an editorial on this subject has appeared about once every two years in THE JOURNAL.[14] It would appear that roentgenology supplies a valuable diagnostic aid which may clear up some hitherto doubtful clinical phenomena.

SUMMARY

Characteristic roentgen observations are present in a high percentage of children with intestinal ascariasis, as shown by a barium cereal meal.

These observations are: (1) soon after ingestion, a cylindric filling defect *in the jejunum;* (2) later a stringlike shadow, representing the barium-filled enteric canal of the parasite.

Roentgen evidence is occasionally definite in the absence of ova in the stool.

ABSTRACT OF DISCUSSION

DR. EUGENE P. PENDERGRASS, Philadelphia: In general, the roentgen diagnosis of ascariasis would seem superfluous, in view of the fact that microscopic examination is cheaper and more accurate in the presence of a few worms. Each mature female produces a large number of ova daily. On the other hand, there are cases in which the female specimens are absent and only males are present. In these one would have to depend largely on the roentgen examination to clinch the diagnosis. Ascariasis may simulate tuberculous peritonitis, duodenal ulcer, carcinoma of the intestinal tract, gallbladder disease, liver abscess, strangulations and many other conditions. Ascarids have caused asphyxia by obstructing the trachea. In children, the symptoms are usually restlessness, instability, grinding of the teeth, twitchings or convulsions. There is usually a marked anemia. It is obvious, therefore, that one should be familiar with the roentgen manifestations of this condition, because it may be possible to make the diagnosis when it is least suspected clinically. Dr. Archer found three cases accidentally in his series. The roentgen observations depend on two conditions: displacement of some of the opaque mediums by the worms and ingestion of some of the opaque mediums by the ascarids. Laurell, in his monograph on this subject, has observed that the contrast medium forms a thin layer about each worm, giving usually the appearance of two parallel lines, in some places less than 1 mm. wide. The female worm is from 7 to 12 inches in length and the male from 4 to 8 inches. They sometimes form slightly serpentine configurations within the lumen of the intestine. In the latter case, they often cross each other in acute angles and the roentgenogram will show parallel streaks and a sort of reticular delineation with oblong meshes. Small filling defects may be seen where there are cross-sections of worms. It is even possible to see the worms move. When several worms are together, some of the parallel lines will correspond to the triangular and prismatic spaces between several worms. The circular serpentine filling defects must be differentiated from the normal appearance cast by loops of small intestine caught in an axial plane on the roentgenograms. Dr. Archer's observation that the worms are less likely to cause filling defects in adults than in children because of the difference in the size of the lumen of the intestine is extremely important. This difficulty may be obviated, however, if one will bear in mind another of his observations; that is, to have the patient fast at least six hours before making the examination and to make roentgenograms two hours after giving the opaque medium.

DR. L. T. LE WALD, New York: Of course the question immediately comes into one's mind whether a tapeworm might be demonstrated in a similar manner. I suppose that the authors have been asked that before. The habitat of the tapeworm is such that it might also be coated and shown.

DR. VINCENT W. ARCHER, University, Va.: Several public health workers who came to the exhibit were greatly interested in the roentgen diagnosis of ascariasis because they said that the diagnosis of ova in the stools was quite difficult, contrary to general belief, because ascaris ova resembled vegetable fibers more closely than did the ova of any other parasite. Dr. Le Wald asked a question about tapeworm. I certainly have been asked that. Unfortunately, I have had only one case of *Taenia* infestation since I started doing this work, and with that patient I worked without success all one day trying to find roentgen evidence. However, in reading the foreign literature, I came across an article in Italian, in which the roentgenologic appearance of tapeworm was described.

Plagues and the Growth of Civilization.—Medical history is of far less importance as a disseminator of light on current problems of disease than as an interpreter of the ups and downs of human fortunes and as a softener of the bias which comes from stereotyped instruction when past history is viewed chiefly from the standpoint of martial activities or religious constraints and inhibitions. Disease, in the form of plagues and pestilences, appears to have been the biological factor most powerful in controlling the growth of civilization.—Oliver, W. W.: Stalkers of Pestilence, New York, Paul B. Hoeber, Inc., 1930.

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[14] The Menace of Ascariasis, editorial, J. A. M. A. **86:** 629 (Feb 27) 1926; Infestation with Roundworms, ibid. **90:** 2107 (June 30) 1928; Ascaris Infestation in Rural Communities, ibid. **94:** 1506-1507 (May 10) 1930.

UNUSUAL COMPLICATIONS OF PROSTATECTOMY

REVIEW OF TWO HUNDRED CASES *

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My object in this paper is to report unusual complications that may occur, directly or indirectly, as the result of prostatectomy. These observations were recorded during the postoperative convalescence of 200 prostatectomized patients.

REVIEW OF THE LITERATURE

A review of the literature impresses one with the improvement of technic of this particular surgical procedure. In the light of present knowledge, reports of prostatectomy twenty-five or thirty years ago sometimes contain amusing incidents.

A general surgeon of that date states: "It is wise to inform a patient, who has been obliged to be catheterized before operation, that it may be necessary to continue this procedure after operation, but it is safe to promise him that catheterization will be much easier and comparatively painless." His experience at that date doubtless justified his extreme conservatism and warranted his avoiding to commit himself definitely.

The physician's statement is reminiscent of the footnote on all descriptive literature of bonds for sale. Following a glowing account of the wonderful merits of the bonds, which undoubtedly corresponds to the physician's reasons given the patient as to why he should be operated on, the bond literature always concludes with the words, "When, as and if issued and accepted by us, and while we do not guarantee the above statement," etc., etc.

ATTEMPTED REMOVAL OF INFLAMMATORY TISSUE

It is certain that the occasional average operator trying to take away too much prostate does not realize that what he assumes to be hypertrophy is really only inflammatory thickened tissue. In striving to enucleate this, he is attempting the impossible. The trauma, which this thickened tissue delivers to the vesical neck, is eliminated when enucleation is confined to the gland itself, which anatomically should be removed. Persistence in manipulating this inflammatory tissue prolongs the operation and encourages a stormy convalescence.

POSSIBLE CONTRAINDICATIONS

Diabetes should not be a contraindication to operation if the general preoperative care has not been neglected and the patient urologically is in good condition. The usual preparation was followed in my cases before the present treatment for diabetes was practiced, and these patients gave me no difficulty.

With the recent studies of myocarditis, much can be done to prevent an unfavorable outcome. A patient with myocarditis not too severe and which has existed for some time, if he can be carefully prepared before operation, should be able to withstand a prostatectomy.

The urologist should plan to give these patients plenty of time for their preoperative preparation and should be on the alert night and day for the first ten days following prostatectomy. The best nurses should be employed, warned of the danger signals, and instructed what to do at a moment's notice. If a nurse waits to locate the internist or operator, it may be too late.

It is best to watch carefully the pulse and blood pressure of every prostatectomy patient, whether he has myocarditis or not and no matter how good his preoperative condition. Observers differ as to how frequently these records should be made. I should say that the pulse should be taken every hour and the blood pressure every two hours during the first forty-eight hours. In some prostatic patients no mistake will be made in observing the pulse every half hour the first day.

COMPLICATIONS OCCURRING AFTER PROSTATECTOMY

Hunt reports the development of suppurative arthritis and empyema following too early passing of a catheter into the bladder after a prostatectomy. He attributes these complications to traumatization of the prostatic capsule, with infection disseminating into the blood stream, pyemia resulting.

Inability to void after operation is a rather embarrassing but fortunately infrequent occurrence. I find but two instances in my series of cases. Both were due to the closing of the vesical end of the urethra by scar tissue. The wounds refused to heal until the condition was corrected. In one case it was possible to open the urethra with the somewhat forcible passage of a urethral sound, leaving a retention catheter in situ until the wound was closed.

The second case necessitated enlarging the suprapubic wound and, under direct vision, excision of the scar tissue.

Although retention catheters aid in avoiding the closure of the urethra, they cause discomfort to most patients, with occasional rise of temperature from urethritis, and they repeatedly become occluded with débris. Unless they drain the bladder as intended, they are contraindicated.

Passage of sounds is also a poor procedure for many reasons. I never place a retention catheter or pass a sound the first week. If all is going well, the patient comfortable, and indications point to an early closure of the wound (i. e., passing of quantities of urine through the urethra), it is best to leave all instruments out of the urethra and keep the patient dry by reapplying dressings hourly. This is especially true when the nurse is inexperienced or the operator not thoroughly familiar with this kind of work.

In the foregoing complication, inability to void does not include cases in which not all of the prostate has been removed, or in which there is a large diverticulum, contracture of the vesical neck or spinal cord disease. These conditions would be easily recognized by a urologist.

Incontinence after operation is a comparatively infrequent condition. In the cases reviewed it seemed to be due to: (1) the removal of a very large prostate which was mostly intra-urethral and anterior to the internal sphincter; (2) too great or too continued pressure of either rubber bag or gauze packing; (3) debilitated and emaciated patients.

Peritonitis is an exceedingly uncommon condition, usually occurring when the surgeon has been obliged to go through scar tissue, the site of some former operation, or occurring at the time of the second stage in endeavoring to enlarge the operative field. An unusually high entrance into the bladder will always prevent tearing the peritoneal fold, because then any enlargement would necessarily be downward, else the

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* Read before the Section on Urology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

lateral or inferior surfaces of the prostate could not be reached.

Pyelonephritis occurs more frequently than reports indicate. It is not known how often, because the lower urinary tract is in such urgent need of attention that the ureters are not catheterized. The etiology is usually from the prostate. The renal condition will improve or disappear after prostatectomy. Usually the patient should not be subjected to any more routine examination than is necessary. His general condition is poor; he is uncomfortable and needs immediate relief. Undoubtedly the increased muscular effort to empty the bladder and the obstruction to outflow cause ureteral reflux.

Relaxed musculature in these old persons, combined with their habit of spending much time in a recumbent position, tend to cause pyelonephritis. A persistence of the condition after a patient has entirely recovered from his prostatectomy would justify ureteral catheterization and all accompanying procedures.

Phlebitis is an uncommon complication also occurring in other fields of surgery and as the result of infection. I can report only one case. Phlebitis may persist from two to four weeks, causing considerable discomfort and necessitating the patient's remaining quiet with the leg elevated and with continued hot dressings.

The first or second week after the surface wound has healed the patient may present himself for the relief of slight pain and burning at the site of operation. Examination will reveal a localized tenderness and perhaps a small pustule. Incision of this will evacuate from 4 to 8 cc. of a semipurulent fluid mixed with serum. This condition is caused by a few shreds of necrotic tissue which did not separate and pass out of the wound before closure.

Too frequent application of stimulating drugs in an endeavor to hasten healing of the suprapubic wound may delay closure. I refer especially to too strong a solution of silver nitrate.

Hiccup is a rare occurrence if the patient's renal condition was satisfactory before operation. The etiology then is obscure. The treatment is very unsatisfactory. In some cases it is possible that the respiratory movement may cause the drainage tube or gauze pack in the wound to irritate the peritoneal fold. Removal of the gauze and tube and, in marked cases, a change of the patient's position, even getting him out of bed into a chair, are justified.

I was called in consultation in such a case recently. The urinary output was satisfactory, the general condition good, and preoperative laboratory reports were correct. I advised getting the patient out of bed and, with assistance, allowing him to stand on his feet and walk a few steps and stay up in a chair until he was tired. The next day I looked into the room as I passed and found the patient out. I inquired whether he was still alive, thinking of course of such complications as emboli; I was told he was out in the sunshine and entirely relieved of his hiccups.

Pulmonary embolus has wrecked the hope of many an operator who believed he was about to break the world's record on prostatic mortality. It is supposed to occur from getting the patient out of bed too early. As far as I can determine, it is reported about once in a hundred cases. If it is wished to shorten convalescence, hypostatic congestion should be avoided. Should ninety-nine patients be kept in bed to evade this rare complication?

The explanation of toxic psychosis is not easy. Even though all function tests are satisfactory, it seems to be of uremic origin. Its onset is sudden, it commonly persists not more than a day or two, and it disappears quickly. One writer records that a patient of his nearly choked a nurse to death before she was rescued. A patient of mine with toxic psychosis suddenly ceased being restless, began to notice what was going on in the room and said to the nurse, "I did not give you your check the other day. Give me my pen and all the bills." He signed his name as well as he ever did.

Postoperative hernia has not occurred in my series of cases when prostatic enlargement was the only complaint. One patient with a large diverticulum and a very large fat abdomen, necessitating an unusually long incision, developed a small ventral hernia. It has not troubled him sufficiently to be repaired. This was one of the most difficult diverticular cases I ever encountered. The procedure took so long that I hurried the abdominal closure.

Hernia never occurs in wounds carefully sutured. Patients who are very stout should be handled the same as in a hernioplasty.

Fistula should never occur in uncomplicated cases if the drainage tube is placed high, near the vault of the bladder, following the prostatectomy. This was pointed out by Squier and others more than twenty years ago. The complications I refer to which cause fistula are: vesical calculi that were overlooked or formed after the operation; contracture of the vesical neck; incomplete removal of the prostate; scar tissue formation at the vesical end of the urethra during the postoperative healing; diverticula; and, lastly, the thin walled abdomen of a debilitated patient. Following enucleation, it is well to pass a number 28 or 30 French sound through the urethra and palpate the internal orifice to see whether the vesical neck is well opened.

Few cases of vesical calculi are reported. They occur from overlooking small calculi at the time of operation, which later grow rapidly larger, encouraged by an unusually purulent alkaline urine and the patient's lowered resistance and predisposition to stone formation. This can be prevented by irrigating the bladder through the abdominal wound with 1,000 or 2,000 cc. of 0.5 per cent boric acid solution once or twice a day. During the second postoperative week this can be continued through the urethral catheter. Sodium acid phosphate and from 1,500 to 2,000 cc. of distilled water should be given by mouth each day.

Parotitis is seldom reported. It occurred twice in my cases and was accompanied by epididymitis. In one case the anesthetist thought it might be due to the use of an airway with resulting dilatation of Stenson's duct, allowing reflux of secretions into the parotid gland. In my second case a spinal anesthetic had been used. I now hesitate to venture an opinion as to the etiology of parotitis.

Pelvic cellulitis can be prevented by the technic of Dr. Edward Keyes or by allowing sufficient time to elapse after cystotomy before doing the second stage of the prostatectomy.

Uremia, hemorrhage, pneumonia, surgical shock and acute cardiac dilatation are frequent complications of which much has been written. They are more or less preventable and should not be included in this paper.

Rectovesical fistula, paralytic ileus, angina pectoris and erysipelas have been reported. I have encountered none of them.

Because autopsies cannot always be obtained, it is not possible always to know the real complication causing death.

REPORT, FROM AUTHOR'S CHARTS, OF INFREQUENT COMPLICATIONS

Case 1.—*Expulsion of portion of prostate through the urethra.* On the ninth postoperative day a patient complained of a frequent desire to urinate accompanied by very severe pain. Previously, nearly all the urine had been voided through the urethra, and the wound was almost healed. Unable to determine the cause of this unexpected state of affairs, I gave him a hypodermic from which he received practically no relief. After about two hours of urinary effort, he expelled a lobe of the prostate through the urethra. It was the size of a small cherry.

Case 2.—*Herpes zoster.* In the second postoperative week this patient complained of intense itching and burning of the skin on the left lower side of the abdomen and extending well down on the thigh. This greatly added to his discomfort and necessitated frequent doses of morphine and phenobarbital. He was entirely well from his prostatectomy before the skin condition disappeared. This particular case is of interest because such an insignificant disease as herpes zoster caused so much disturbance while a major operation gave no trouble.

Case 3—*Diaphragmatic hernia.* The fourth day after a prostatectomy the patient suddenly developed severe dyspnea, syncope, cyanosis, irregular pulse, marked pallor, hiccup, severe pain in the chest and a fear of impending death. He was able to breathe only when in an upright position. An internist, after a rapid examination, made a diagnosis of diaphragmatic hernia. Roentgen examination confirmed this. The patient died two hours later. This patient, although 79 years old, also had gonorrhea.

Case 4.—*Unusual postoperative hemorrhage.* During the night a nurse, as she passed through the ward, heard a patient complaining of pain. On investigation, she found that the patient had just pulled a small-sized Pilcher bag out through the urethra. He died that night from hemorrhage and shock.

Case 5.—*Hyperpyrexia of 108 F. without death.* This patient suddenly developed chills and fever during the third postoperative week. His temperature gradually rose to 104, 105, 106, then receded to 105, and again rose to 106, 107 and 108. This occurred on three different occasions within a week. The patient was delirious, of course, and considerable assistance was necessary to restrain him. Previously he had been voiding normally, and his wound was nearly healed. The thermometer was checked and found to be correct. The patient recovered and still has this thermometer as a souvenir. This occurred nine years ago. The patient is now in good health and lives in Pasadena. Such high temperatures occur in typhoid, meningitis, septic abortion, Mediterranean fever and heat stroke. He had none of these diseases. What was the cause of the rise of temperature?

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ABSTRACT OF DISCUSSION

Dr. Arthur L. Chute, Boston: I agree with most of the points Dr. Dakin raised. With me the mental upsets of these patients have been more troublesome than he has found them. I have a man under observation now who has been psychotic for two or three weeks. The last report I had was that he had scratched his male nurse's face with his toe nails the night before. I am glad that these cases are milder on the Pacific coast. As to hiccup, I have had that persist for several days, if I remember rightly, even up to a week or a little longer. I find that filling the patient up with salt solution usually relieves it. I know of nothing to do for the severe cases of embolism, whether they are pulmonary or coronary; the severe ones are promptly fatal and the mild ones, especially of the lungs, are recovered from. I fear that my incidence of embolism is greater than 1 per cent. I believe that paralytic ileus is just a manifestation of the toxic condition so often seen in prostatic cases. Within the year there has come to my notice the third enterostomy for this toxic distention. It did no more good than was the case with the other two, the first of which I did myself many years ago. This should never be considered. If these patients are to get well they will get well under the use of salt solution under the skin: often it must be given in enormous amounts, from 4,000 to 6,000 cc. a day, for several days. If the patient's heart muscle is poor, I know of nothing that will remedy this condition. The use of repeated enemas and of hot applications to the abdomen in conjunction with the salt solution are of great help in the successful treatment of those cases.

Dr. J. H. Morrissey, New York: Dr. Dakin did not mention one complication, dermatitis exfoliativa. I saw it in a patient who was operated on for prostatic hypertrophy, went home in due time, and several days later developed a mild psychosis for which he was brought back to the hospital. At the time he had a rash on his head and neck which resembled scarlet fever. Several skin consultants were invited to see the case and made the diagnosis, stating that it was due to a probable collection of pus somewhere. The old wound and bladder region were thoroughly explored without success and finally the rash involved the entire body with its characteristic reactions. Gradually the urea nitrogen mounted from 85 mg. per hundred cubic centimeters to 128 and his white count ran around 39,000. Owing to the absolute cessation of skin excretion his condition became worse and when his total nonprotein nitrogen was 275 he died. During the three weeks in which he lived he had an intravenous saline injection of 2,000 cc. daily. This shows the value of the skin as a means of excretion and when such an area is shut off, that a much greater strain is put on kidneys that are already damaged. Several older urologists who saw the case told me they had seen three or four cases in the past twenty years and that they were invariably fatal. The condition is a true infection of the derma, which is thickened and swollen and exfoliates to such a degree that the scales could be brushed out of the bed at night. It was very disappointing to have this patient, who had gone through a severe operative procedure as the result of having catheterized himself for two years with infection, die of a skin complication. I think it was due to the fact that he was too debilitated when the second stage operation was performed, as I should have waited a week or two longer.

Dr. William E. Lower, Cleveland: There is one complication which might be a factor in the causation of prostatic hypertrophy, and that is chronic inflammation, which is nearly always found in these cases. Recently in taking cultures of the removed prostates I have found that 70 per cent yield growths usually showing the colon bacillus. As these glands are wet, there must be an excessive secretion in them, and this excess secretion may be stimulated by the chronic inflammatory condition. If a chronic inflammation is considered as a possible factor in the production of hypertrophy, this may be counteracted in some way. These infections, I believe, are usually metastatic infections, often from the respiratory tract, as after influenza. It would be instructive, I think, if cultures of removed prostates were taken as a routine and the resultant growths reported.

Thinking Revolutionized by Science.—No one, today, doubts that science holds a place of the first rank in building up and in maintaining our highly mechanized civilization. Few would venture to question the dominance of science in its relation to industry, or the benefits that it has conferred on humanity through sanitation and medicine. In the field of higher education its opponents have constantly lost ground, until it may now be said that science, both in the faith of the many and in the curricula of our numerous educational institutions, holds the commanding position that was formerly given to the humanistic studies. The former antagonism between science and the humanities is rapidly being dispelled and a new order of educational procedure is coming into being. The conflict between science and religion has, in the more enlightened communities, passed into the realm of history, and at present their interests are seen to be in cooperation rather than opposition. In every field, human thinking has been revolutionized by the knowledge gained through science and the scientific method.—Saidla, L. E., and Gibbs, W. E.: Science and the Scientific Mind, New York, McGraw-Hill Book Company, Inc., 1930.

MIGRAINE

RESULTS OF TREATMENT BY KETOGENIC DIET IN FIFTY CASES [*]

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Early in my experience with the ketogenic diet,[1] it was tried in cases of migraine. Since then Lennox and Cobb,[2] in their monograph on epilepsy, have stated that it would be of interest to know whether the induction of acidosis is of benefit in cases of migraine. Since the original report from the Mayo Clinic,[3] Schnabel [4] has reported his experience with a ketogenic diet in cases of migraine.

Some of the recent etiologic theories and therapeutic suggestions are of interest in considering the justification of a ketogenic regimen in cases of migraine. R. and S. Weissmann-Netter [5] found apparent changes in the acid-base balance: the hydrogen ion concentration and alkali reserve are normal in the periods of freedom from attacks but a tendency to alkalosis develops forty-eight hours prior to an attack. The recent method of studying acid-base equilibrium by hyperpnea or overventilation of the lungs, which induces alkalosis, was utilized by Muck,[6] who by this method produced hemicranial attacks in cases in which the patients were subject to migraine. Most patients, because of the nausea and vomiting with the attacks, voluntarily fast until relieved, thereby producing fasting ketosis. Bigland [7] called attention to the use of large doses of calcium lactate in an effort to lessen the irritability of the nerves.

TABLE 1.—*Observations on Patients Whose Conditions Had Been Controlled*

Case	Age	Sex*	Attacks Before Treatment	Disease, Years	On Diet, Months	Ketosis	Comment
1	28	♀	About once a week, lasting two to three days	13	23	Always present	Attacks disappeared after two months
2	26	♀	Twice a week, lasting about two days......	19	7	Always present	Headaches frequent first six weeks on diet; none since
3	29	♀	Two to three time a week, lasting twelve to eighteen hours	19	20	Periodic	Controlled after first two months
4	37	♀	Once a week, lasting twelve to thirty-six hours	27	9	Always present	First month on diet less severe headache every week; then entirely free since
5	33	♀	Two to three a month, lasting two to three days	8	23	Periodic	After first two months free from attacks
6	44	♀	At least two a month.................... ...	32	16	Periodic	Attacks disappeared after two months
7	21	♀	One to two a week, lasting several hours...	4	14	Always present	After two months some relief; after three months arrested
8	52	♀	One to two a week, lasting one to two days, *menopause at thirty-eight; no alteration in attacks*	25	16	Always present	After two months no headaches
9	23	♀	Cyclic vomiting beginning at age of two years; migraine at 14; attacks about every five to six weeks	21	15	Always present	Controlled since ketosis developed
10	31	..	Once and sometimes twice a week..........	21	18	Almost always present	No headaches after first three weeks
11	30	♀	Three to six weeks..................	17	13	Always present	Attacks controlled since being on diet
12	27	♀	One to three a week lasting about twelve hours	15	9	Periodic	Attacks controlled since fourth week on diet
13	54	♂	Cephalic migraine thirty-eight years; abdominal migraine last two years	38	36	Present one year, periodic since	Both abdominal and cephalic migraine disappeared after six weeks
14	25	♀	Every two to four weeks..................	8	9	Almost always present	One attack in first three months; none since

* In the tables, ♂ indicates male; ♀, female.

The suggestion that migraine is sometimes a phenomenon of protein sensitization is not new. Pagniez [8] and his associates assumed that migraine is an anaphylactic manifestation. Miller and Raulston [9] continued the work in this country. Vaughan,[10] Rowe,[11] and many others have considered migraine from the standpoint of an allergic manifestation. Curtis-Brown [12] proposed the theory of inherited impaired metabolism with intolerance of nitrogenous foods, a protein-poison theory. They advocated various forms of treatment from the use of peptone to the restriction of certain proteins.

Chiray,[13] Duval,[14] Diamond,[15] Hetinyi,[16] McClure and Huntsinger,[17] and others have approached the problem from the standpoint of dysfunction of the liver and duodenum. They have called attention to biliary stasis as an etiologic factor. The French literature has emphasized duodenal migraine; in it evidence is presented of disturbed hepatic function as estimated by the van den Bergh reaction and retention of bilirubin. Many patients with so-called bilious headaches have been improved by intraduodenal administration of magnesium sulphate to stimulate the flow of bile. A distinct increase in the size of the liver may occur during an attack; the liver may be definitely tender and palpable to a degree not found between the attacks. I have found in some cases that a definite increase in the bile pigment of the plasma occurs coincidently with the headaches.

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[*] From the Division of Medicine, the Mayo Clinic

[*] Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

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2. Lennox, W. G., and Cobb, Stanley: Epilepsy, Baltimore, Williams and Wilkins Company, 1928, p. 145.

3. Pollock, L. W., and Barborka, C. J.: Abdominal Migraine M Clin. North America **11:** 1665-1667 (May) 1928.

4. Schnabel, T. G.: Experience with Ketogenic Dietary in Migraine, Ann. Int. Med. **2:** 341-347 (Oct.) 1928.

5. Weissmann-Netter, R., and Weissmann-Netter, S.: Equilibre acide-base et migraine, Compt. rend. Soc. de biol. **92:** 341-343 (Feb 7) 1925.

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7. Bigland, A. D.: Treatment of Migraine by *Calcium* Lactate, Brit. M. J. **2:** 1133-1135 (Dec. 15) 1923.

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12. Curtis-Brown, R: Protein Poison Theory: Its Application to Treatment of Headache and Especially Migraine, Brit. M. J. **1:** 155-156 (Jan 24) 1925

13. Chiray, M., and Triboulet, F Rôle of Stasis in Gallbladder in Migraine, Presse med **33:** 313 315 (March 11) 1925.

14. *Duval, P., and Roux, J. C: Duodenal migraine, Arch. d mal. de l app digestif.* **14:** 74-79 (Jan) 1924

15. Diamond, J. S. Liver Dysfunction in Migraine with a Report of Thirty-Five Cases, Am J. M. Sc. **174:** 695-702 (Nov.) 1927.

16. Hetinyi, G Hyperbilirubinemia in Migraine, Arch. f. Verdauungskr. **31:** 247-251, 1923

17. McClure, C W., and Huntsinger, Mildred E: Observations on Migraine, Boston M. & S. J. **196:** 270-273 (Feb 17) 1927.

Brown[18] emphasized the part diet plays in the etiology and treatment of migraine. It does seem that the character of the diet plays some part in the explosive phenomena of an attack of migraine if only as a secondary or contributing factor. It is recognized that nervous strain, the vasomotor instability associated at the time of the menstrual period, emotional excitement, fatigue and various psychic phenomena unquestionably are contributory factors, but in many cases it is quite impossible, either physically or psychically, to explain the migraine on such a basis alone, and other factors making the patient susceptible must be found.

Many patients volunteer the information that excessive use of carbohydrates results in a headache, even the taking of a cup of chocolate or a piece of candy. There are also patients who feel that protein is the food that precipitates the attack. In the largest group, the excessive intake of carbohydrates, or an amount excessive for the individual's tolerance, precipitates an attack. Hare,[19] Brown and Minot [20] have emphasized the rôle of a diet low in carbohydrate in the treatment of migraine.

The ketogenic diet, of course, is a diet low in carbohydrate, but it offers more than restriction of carbohydrates. If alkalosis induces migraine, the ketogenic diet which produces ketosis, with an accompanying decrease in the irritability of the nerves, might be an additional inhibiting factor. From the standpoint of an allergic manifestation, because the content of protein in the diet is low it is possible that there is a chanc withdrawal of the specific protein element. Boyden[2 has shown that a diet high in fat promotes biliar drainage, and it has been demonstrated also tha duodenal motility occurs after ingestion of fat. Therefore, benefit could be expected in the cases due t dysfunction of the liver and duodenum.

With these facts in mind, it can be seen that the us of the ketogenic diet is not without logic, as potentiall it could cover, in a therapeutic manner, all of the foregoing suggestions at the same time.

ADMINISTRATION OF THE DIET

The ketogenic diet denotes a diet having high fat an very low carbohydrate constituents in definite but varie proportions which result in the excretion of keton bodies. This form of diet influences the acid-base balance and produces certain physicochemical changes in the tissues of the body which deserve a great deal of further investigation and study. This form of treatment is to be applied quantitatively in selected cases as an accurately controlled and supervised experiment rather than to be accepted as a proved specific remedy for migraine.

My purpose in making these observations was to determine whether or not the results of the treatment of severe typical migraine by the ketogenic diet would justify the necessary effort and sacrifice on the part of the patient. It is realized that the ketogenic diet cannot be used as a routine because of certain difficulties, which have been reported.[1]

The cases that were selected for this study included only those in which there had been frequent attacks of typical migraine and those in which attacks were unusually severe; it is recognized that many headaches

Table 2.—*Observations on Patients Benefited*

Case	Age	Sex	Attacks Before Treatment	Disease, Years	On Diet, Months	Ketosis	Comment
15	33	♀	Two to three a week, lasting six to twenty-four hours	11	10	Periodic	Attacks gradually decreased to about one a month
16	23	♀	One to two a week, lasting six to twenty-four hours	10	12	Periodic	Attacks about once in two months since on diet
17	16	♀	Two a week; twelve to twenty-four hours..	4	11	Periodic	Occasional slight headache of short duration
18	21	♀	Two a week.......	15	6	Periodic	Headaches gradually lessening in frequency and severity
19	29	♀	One a week, lasting from twenty-four to *forty-eight hours*	8	24	Periodic	Headaches controlled on diet but with breaks in diet *recurring headaches*
20	23	♀	One or two a week; shortest attack one hour; longest attack three days	16	8	Periodic	Headaches gradually decreased in frequency and severity; occur only with breaks in diet
21	40	♀	Two a month at first, lasting one to two days; last five years one to two a week	10	10	Periodic	Only *four severe attacks* since on diet; menopause not entered
22	24	♀	One to two a week.........................	8	22	Periodic	Attacks one in two months; gradually lessening in frequency and severity
23	29	♀	One every three or four weeks; last few years, two a month	14	12	Periodic	Great lessening in frequency and severity of attacks
24	39	♀	Two or three a week...	27	11	Periodic	Only six attacks, not *severe, since* on diet
25	30	♀	Two to four a week, lasting about six to twelve hours	11	15	Always present	Attacks reduced to about one a month
26	27	♀	Two to three a week.......	12	18	Periodic	One mild attack every few weeks
27	33	♀	Two or more a week, lasting twelve to twenty-four hours	29	15	Periodic	Attacks less frequent and less severe
28	16	♀	Once a week, lasting two days...............	10	12	Always present	Attacks less frequent and less severe, coming about once in six weeks
29	27	..	Severe migraine twice a week; the last two *years, abdominal migraine associated*	8	16	Periodic	One or two slight headaches a month
30	42	♀	Three or four a week.......................	36	14	Periodic	Headaches very much improved; attacks once or twice a month; menopause not entered
31	25	♀	One to three a week........................	5	8	Periodic	Attacks once a month but just as severe
32	35	♀	At least one every ten days; sometimes every other day	27	6	Periodic	Two attacks first three months on diet; none in next three months; patient then broke diet
33	66	♀	Every week or two...........................	54	6	Periodic	Attacks less frequent and less severe
34	31	♀	Once a week...................	18	7	Periodic	Four attacks in seven months
35	39	♀	Three days to three weeks, lasting three to ten days	10	8	Periodic	One attack a month of shorter duration and less severe
36	40	♀	Every ten days.............................	28	10	Periodic	Four attacks since on diet; less severe and about half as long
37	32	♀	Once a week................................	20	17	Periodic	Attacks occurring only at menstrual period; none for last four months
38	28	♀	Every eight to twelve days..	16	6	Periodic	Headaches only once a month since on diet
39	49	♀	Twice a week.............	37	8	Periodic	Headaches less severe; about one every other month

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[18] Brown, T. R.: Rôle of Diet in Etiology and Treatment of Migraine and Other Types of Headache, J. A. M. A. **77**: 1396-1400 (Oct. 29) 1921; Treatment of Migraine and Hypertrophic Arthritis Based on Metabolic Studies, Tr. A. Am. Physicians **44**: 215-220, 1929.

[19] Hare, Francis: Food Factor in Disease, London, Longmans Green & Co., 1905.

[20] Minot, G. R.: The Rôle of a Low Carbohydrate Diet in the Treatment of Migraine and Headache, M. Clin. North America **7**: 715-728 (Nov.) 1923.

[21] Boyden, E. A.: An Analysis of the Reaction of the Human Gallbladder to Food, Anat. Rec. **40**: 147-191 (Oct.) 1928.

accompanying neurosis and psychosis are often termed migraine or rather atypical migraine, and this group was purposely avoided for this particular study. Further selection was made of only those cases in which the patients were willing and able to spend adequate time to learn the manner of maintaining and adjusting the ketogenic diet so as to be able to carry on the regimen at home for at least a trial period of six months. Women rather than men were selected for observation in this first trial series as it seemed certain that they would follow the regimen more accurately.

Fatigue, and the emotional and the psychoneurotic state of patients leading hurried, complex lives with a great deal of mental stress and strain, as well as lack of exercise and outdoor life, may be factors precipitating or aggravating migraine; any change of environment may relieve such patients temporarily. An attempt was not made to alter the lives or change the mode of living of the patients in my series. The only requirement insisted on was the effort and the willingness of the patients to follow and maintain the ketogenic diet to the best of their ability for the six months' trial.

TABLE 3.—*Observations in Failures*

Case	Age	Sex	Attacks Before Treatment	Disease, Years	On Diet, Months	Ketosis	Comment
40	30	♀	Two to four a week..........................	14	6	Never present	Headaches less severe but just as frequent
41	30	.:.	Two to four weeks; very severe...........	18	4	Always present	No benefit in four months; diet stopped
42	40	♀	Every ten days..............................	14	3	Never present	No change after three months; diet stopped
43	32	♀	One every two weeks........................	12	4	Always present	No change after four months; diet stopped
44	44	♂	Cyclic vomiting of childhood; attacks every week or two	40	3	Never present	No change after three months; diet stopped
45	43	♀	Every two weeks, lasting half a day to two days; not in menopause	35	4	Occasionally present	Attacks every four weeks; just as severe
46	43	♀	Two a week, lasting two or three days at a time	23	6	Periodic	Attacks about once in ten days
47	37	♀	Eight to ten days..........................	5	6	Never present	Practically no change in attacks
48	33	♀	Every two weeks............................	6	5	Never present	Attacks not influenced by diet
49	33	♀	Every three weeks, lasting two to five days	20	6	Periodic	Attacks practically the same
50	35	..	Ten to twelve days, lasting twenty-four to thirty-six hours	20	5	Periodic	Headaches as regular and last as long as formerly but not so severe

Most of the patients had resorted to all types of medical treatment, and sometimes to surgical treatment, without benefit. They were desperate and were willing to attempt any procedure, regardless of the effort involved. Since treatment of migraine by the ketogenic diet must be continued throughout an indefinite period of time, it is extremely important to guard against any evil effects that might result from lack of protective food if the diet should prove inadequate. Therefore adequate calories, protein, salts and vitamins must be provided.

An interpretation of statistics and results, especially concerning a condition such as migraine, cannot be made that is not subject to error. Every one recognizes that there are many factors that may enter into the aggravation of, or the temporary cessation of, attacks. Nevertheless, I feel that the benefits thus far derived have been sufficiently encouraging to justify the further use of the ketogenic diet in the treatment of severe typical migraine.

RESULTS

The patients in this series have been on the ketogenic diet from three to thirty-six months. For purposes of study the cases have been tabulated in three groups: (1) those in which the attacks of migraine have been controlled by the ketogenic diet; (2) those in which there has been definite improvement by lessening of the frequency or severity of the attacks, and (3) those in which the treatment failed. The age of the patients varied from 16 to 66 years; the period over which attacks of migraine had occurred varied from four to fifty-four years prior to the time of treatment.

Fourteen of the fifty patients controlled the migraine by the use of the ketogenic diet (table 1). The cessation of the headaches varied from the time ketosis developed to as long as three months. Most of the patients in this group maintained constant ketosis; a few experienced temporary disappearance of ketosis for a few days. The patients in this group have been on the diet from seven to thirty-six months.

Twenty-five patients (table 2) have been definitely benefited; the attacks of migraine are less common and less severe. Only two patients (cases 25 and 28) maintained ketosis; the remainder were periodically in ketosis. The migraine of some of the patients in this group was controlled for the time they were in ketosis, and when they broke the diet, recurrence of the migraine followed.

Eleven patients (table 3) did not derive any benefit from the procedure. These patients made an effort to follow the diet from three to six months. Two patients (cases 41 and 43) maintained ketosis constantly, but without any influence on the attacks of migraine. Four patients (cases 45, 46, 49 and 50) were in ketosis periodically, and the remaining patients did not reach the state of ketosis.

It should be noted (table 4) that in the fourteen cases in which the attacks were controlled, diacetic acid, tested for daily, was always present in nine cases, and was present intermittently in five. In the twenty-five cases in which the condition was improved, ketosis was maintained in only two, and in twenty-three it was periodic; the diet apparently produced a state of threshold ketosis. Of the eleven patients who were not benefited, only two maintained the diet accurately and were in a state of ketosis, and this was for four months only; they became discouraged because of not receiving benefit and discontinued the diet. Four of the eleven patients were periodically in ketosis and five did not reach this state at any time.

TABLE 4.—*Summary of Cases* *

		Ketosis		
	Cases	Always Present	Periodic	Always Absent
Controlled.	14	9	5	..
Improved	25	2	23	..
No benefit.	11	2	4	5
Total....	50			

* Total deriving benefit, thirty nine cases.

SUMMARY

Fifty patients who were suffering from severe typical migraine were treated with a ketogenic diet. The attacks of fourteen patients were controlled. Twenty-five patients were definitely improved. Thus, thirty-nine patients were benefited by the diet. Eleven patients were not benefited and the treatment was considered a failure, although a number of the patients were not maintained in a state of ketosis.

BACTEREMIA AND ACUTE THROAT INFECTIONS [*]

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In an attempt to determine whether a bacteremia can be demonstrated as an occasional or a frequent accompaniment of an acute or a subacute infection of the upper respiratory tract, series of blood cultures were taken at various times in children at the Children's Memorial Hospital, Chicago. In connection with these blood cultures, additional cultures were taken of the throat, nose and some of the complications, when present.

We were unfortunate in not finding many cases of the typical type of throat infections in the very early stage that we desired, that is, while the throat and nose were acutely inflamed with a temperature of 102 F. or over and before any complications such as mastoiditis, pneumonia or appendicitis had occurred. However, we found a great number of subacute throat infections in some of which secondary manifestations had occurred with the apparent etiologic factor in the throat infection. It is with these types of cases that this report deals largely.

BACTERIOLOGIC TECHNIC

From 5 to 10 cc. of blood was drawn from the external jugular or arm veins and placed directly in flasks containing 50 cc. of nutrient broth. The flasks of broth were heated to approximately 37 C. before being used and were placed in the incubator immediately after the blood was added. The cultures were observed daily for growth over a period of two weeks. Growth was determined by making a Gram stain of a loopful of culture. When the broth above the blood remained clear, the culture was not opened but was shaken and replaced in the incubator. The cultures were always streaked on blood agar and examined for growth before being discarded. Later, instead of being placed directly into the mediums, the blood was drawn into sterile flasks containing glass beads and defibrinated blood. Approximately 1 cc. of the defibrinated blood was placed in each of two tubes of 0.1 per cent dextrose brain broth. Cultures of the remaining blood were made in 50 cc. of broth as before. In a few cases, aerobic and anaerobic plate cultures were made.

Nose and throat cultures were taken on blood agar, with a few exceptions when broth was used, and the predominating organism was noted.

The ages varied from 1½ years to 14 years, with an average of about 5¼ years.

Almost all the children had an elevation of temperature at the time the cultures were taken with an average of about 102.3 F.

The white blood cell counts were taken in twenty-nine cases. They varied from 13,700 to 39,000, with an average of about 23,000.

RESULTS

Ninety-three throat cultures were taken in which the green cocci were found to be the predominating organism in sixty-four instances (about 69 per cent). *Streptococcus hemolyticus* was obtained in twenty-one cultures (about 23 per cent); *Staphylococcus albus* in six instances (about 7 per cent). *Staphylococcus hemolyticus* was isolated in two cases. The Klebs-Loeffler bacillus was incidentally found in two throats.

Eighty-seven cultures were taken from the nose. The predominating organism found in forty-four instances (about 50 per cent) was *Staphylococcus albus*. This is in marked contrast to the throat cultures, in which this organism occurred in only 6 per cent of the cultures taken. The green cocci were next in order of frequency, occurring in thirty-one instances (about 36 per cent). *Streptococcus hemolyticus* was found in the nose in ten cultures (about 12 per cent). *Staphylococcus aureus* and *Staphylococcus hemolyticus* were recovered once each.

The throat and nose cultures were taken together in twenty-nine instances. A streptococcus and a staphylococcus were found in about two thirds of the cultures. The green coccus was isolated in eight instances.

Cultures of the mastoids were taken at operation in five cases. *Streptococcus hemolyticus* was obtained three times, a green coccus and a pneumococcus once each.

Cultures taken from the appendix at operation in three cases revealed *Streptococcus hemolyticus* in two instances and a green coccus in one case.

Streptococcus hemolyticus was recovered from a profuse ear discharge in the one case in which a culture was taken.

Cultures of the spinal fluid in the two cases taken were negative.

BLOOD CULTURES

One hundred and thirty-one blood cultures were taken in sixty-three cases. In four children a positive culture of the blood was obtained. *Streptococcus hemolyticus* was found in two cases and a green coccus and a pneumococcus in one instance each.

The case of pneumococcic infection of the blood stream (case 39) is of interest as the organism was recovered from the blood before a clinical diagnosis of pneumonia was made. The first cultures taken from the throat and nose showed *Streptococcus hemolyticus*. The later culture from the throat and nose revealed a green coccus.

The child in whom a green coccus was recovered from the blood stream (case 1) died from a heart and cerebral embolism. The green cocci were also obtained from the throat. *Staphylococcus albus* was the predominating organism from the nose.

The first case of a hemolytic streptococcus recovered from the blood stream (case 7) was in a child with an acute suppurative otitis media of about ten days' duration, at which time a beginning pneumonia of the left lower base occurred. The streptococcus was obtained from the blood stream on two successive days. The same organism was also found in the ear discharge. Green cocci were isolated from the throat, which was not acutely inflamed at the time the throat cultures were taken. *Staphylococcus albus* was the predominating organism in the nose.

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[*] From the Otho S. A. Sprague Memorial Institute Laboratory of the Children's Memorial Hospital.

[*] Read before the Section on Laryngology, Otology and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

[*] This article is abbreviated in The Journal by the omission of the tabulated report of cases. The complete article appears in the Transactions of the Section and in the authors' reprints.

The second case in which a hemolytic streptococcus was found in the blood stream (case 63) is a striking example of a bacteremia from an acute throat infection in which the diagnosis is substantiated by an autopsy:[1]

Richard K., aged 3½ years, was first seen April 24, at 1 p. m. by Dr. Louis W. Sauer because of repeated vomiting and two liquid evacuations. He had been indoors several days with a slight head cold but was taken on a rather long automobile ride the day before (April 23). That evening he ate a hearty supper, was playful, slept most of the night, and ate his breakfast the next morning as usual. About 10 a. m. he vomited for the first time and retained nothing after that. The temperature was 101 F.; the respirations were 28; the pulse was good. He was not in pain, could sit up, stand up and lie down. Examination made by Dr. Sauer at 1 p. m. was negative except for a slight laryngitis and marked pharyngitis. The lungs, heart, abdomen, reflexes, eyes, nose and ears were normal. The child appeared to have an upper respiratory infection involving mainly the larynx and pharynx.

That evening, about 8 p. m. he suddenly became much worse with unconsciousness, extremely pale color, labored respirations of about 50 and a slow, weak but regular pulse. The temperature was 103 F. Numerous coarse and fine râles were found over the entire chest; the reflexes were reduced; the pupils were large and responded slowly to light. Vomiting had occurred all the evening with the last vomitus containing brown blood. At this time, he was given 10 minims (0.6 cc.) of epinephrine hydrochloride intramuscularly and then taken to the Evanston Hospital. On arrival, 150 cc. of dextrose Ringer's solution was given by hypodermoclysis. Within a few minutes he had a series of short convulsions with death at 1 p. m., about twelve hours after the onset of symptoms.

Since the child was exceptionally well developed, overweight, and had had chronic eczema during the first two years of life, a tentative diagnosis of status thymicolymphaticus with beginning capillary bronchitis was made by Dr. Sauer at this time.

Autopsy performed a few hours after death revealed acute pharyngitis, laryngitis, tracheitis and hypostatic congestion of both lungs. The thymus weighed 23 Gm. The lymph glands of the mesentery, Peyer's patches and solitary follicles were rather large. There was no sign of pressure by the thymus on the trachea, nor was there any local edema. The following day the throat culture and the plates of the heart's blood showed innumerable streptococci of the hemolytic type. This observation led to the diagnosis of acute streptococcic septicemia, following a streptococcic throat infection in a young child with lymphoid hyperplasia. Death was evidently due to the overwhelming flood of hemolytic streptococci in the blood stream with the probable portal of entry from the throat.

CONCLUSIONS

A bacteremia secondary to an acute or a subacute throat infection is not easily demonstrated by bacteriologic examination of the blood stream.

An occasional bacteremia can be shown to accompany an uncomplicated acute throat infection.

Streptococcus hemolyticus was found more frequently in the acutely inflamed throats and the green cocci in the subacutely injected throats.

In the various complications that may be due to an acute throat infection, *Streptococcus hemolyticus* was found in two thirds of the cases.

ABSTRACT OF DISCUSSION

Dr. Samuel Pearlman, Chicago: If routine blood cultures were made in all cases of acute upper respiratory infection, no doubt the number of positive observations would be a matter of surprise. Conversation with a number of competent bacteriologists leads me to believe that a rough figure of 5 per cent would approach the truth. However, and this is important, in most instances after the first two or three days the cultures would no longer be positive. Should they persist, no matter what the clinical picture at the time, one has the right to suspect that grave mischief is brewing and a careful search should be made for evidences of early endocarditis, early pneumonia, arthritis or peritonitis. The serious sepsis sometimes following instances of angina would no doubt be diagnosed earlier and proper treatment instituted sooner if routine blood cultures were taken in every case of sore throat that was not doing well. The authors' work calls attention again to an extremely valuable laboratory aid which many do not avail themselves of often enough.

Dr. Howard C. Ballenger, Chicago: A positive blood culture would perhaps be nearer of attainment if blood from the internal jugular vein were taken, but that seems rather formidable and we did not do it.

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[1] Dr. Louis W. Sauer reported this case in brief before the Chicago Pediatric Society, May 15, 1928 (Am. J. Dis. Child **36**: 1071 [Nov.] 1928).

TONSILLECTOMY IN THE TREATMENT OF ACUTE CERVICAL ADENITIS IN CHILDREN *

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It may be safely stated that one of the most common sequelae of acute tonsillitis and tonsillopharyngitis in children is anterior cervical adenitis. So true is this statement that it might even be enlarged on to the extent of saying that almost 100 per cent of acute tonsillopharyngeal infections have an associated lymphadenitis of the anterior cervical glands. This high percentage would, of course, include cases of such mildness as to exclude them from the scope of the present paper, which is based on a series of forty cases of sufficient severity to justify tonsillectomy as a means of controlling the infection in the glands while that infection was still at its height.

I shall go into considerable detail in describing the usual onset and course of cases of acute cervical adenitis in order that the reader may fully understand the exact type of case in which I advocate the removal of tonsils for a cure. Tonsillectomy for chronic cervical adenitis has long been accepted and practiced,[1] but a fairly painstaking review of the literature does not reveal any instance of definite recommendation of tonsillectomy as a treatment in cases of acute cervical adenitis during the most active stage of the disease. In fact, one author[2] definitely states that early removal of the tonsils predisposes to breakdown of the glands, while another[3] states just as definitely that the operation should not be performed until the acute stage of the disease has passed on account of the danger of septicemia. Many others also recommend waiting for the subsidence of the acute symptoms. Tonsillectomy and adenoidectomy during the acute stage has therefore been practiced only here and there sporadically by surgeons who doubtless felt that they were treading on dangerous ground and who may have done the operation against the advice of others. This is the attitude which I desire to influence and, if possible, to change.

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* Read before the Section on Laryngology, Otology, and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Howarth, W. G., and Gloyne, S. R.: Unhealthy Tonsils and Cervical Adenitis, Lancet **2**: 997 (Nov. 12) 1921. Friedman, J., and Greenfield, S. D.: Significance of Enlarged Glands in the Neck, M. J. & Rec **120**: 382-385 (Oct. 15) 1924. Morse, J. L.: Clinical Pediatrics, Philadelphia, W. B. Saunders Company, 1926, p. 471. McClanahan, H. M.: Pediatrics for the General Practitioner, Philadelphia, J. B. Lippincott Company, 1929, p. 509. Wagner, C. E.: Acute Cervical Adenitis in Children, Delaware State M. J. **1**: 39-40 (March) 1929. Manning, J. B.: Clinical Study of Thirty Cases of Cervical Adenitis, Northwest Med **20**: 244 (Sept.) 1921.

[2] Lucas, W. P.: Modern Practice of Pediatrics, New York, Macmillan Company, 1927, p. 475.

[3] Wagner (footnote 1).

The forty cases which are referred to here have been very carefully selected and were all private patients, the average age for the series being 3.6 years. Only those which conform strictly to every requirement of the paper have been included, which means that all showed acute enlargement of the anterior cervical glands following a tonsillopharyngeal infection, with soreness and tenderness of the glands, stiffness of the neck, general prostration of varying degree, high and usually irregular fever, an increase in leukocytes and in percentage of polymorphonuclear neutrophils, and a decrease in hemoglobin. In addition, the antecedent acute throat infection may or may not have been observed personally by the writer in each case but, if not, it was under the observation of a competent pediatrician during at least a part of its course in almost every instance. In the few exceptions to this rule the history has been carefully checked with the parents to verify the fact that an acute upper respiratory infection invariably preceded the development of the adenitis.

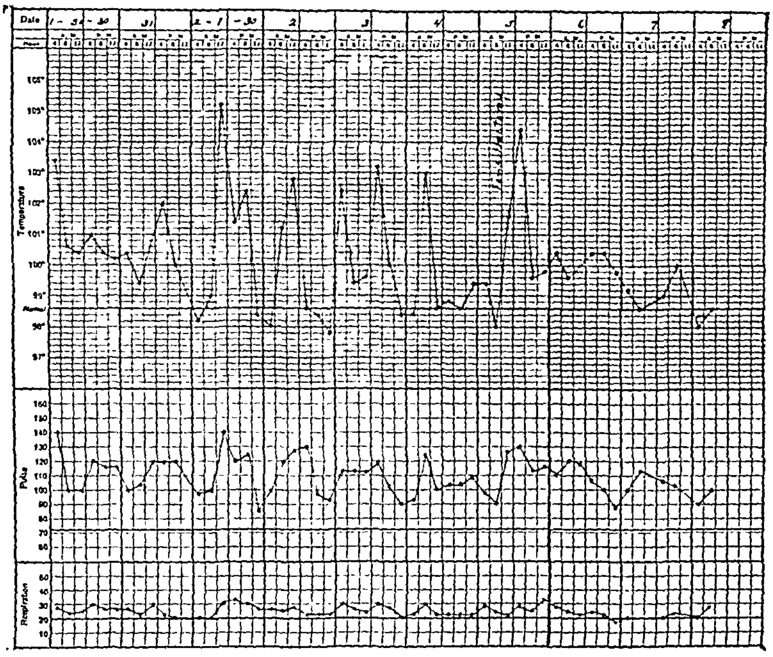

Chart 1.—Temperature in a typical case of acute cervical adenitis. (Note irregular type of temperature and rapid improvement following opration.)

CLINICAL PICTURE

The typical picture of the onset of these cases is that of a primary upper respiratory tract infection, occurring usually during a seasonal epidemic, and coming on acutely. This most frequently manifests itself as a tonsillopharyngitis, sometimes as a simple tonsillitis, and occasionally with apparently little or no tonsillar involvement, but only a pharyngitis. It usually also involves the nasal chambers in the form of an acute rhinitis, and if roentgenograms of the sinuses are taken the congestion in the antral mucosa will almost invariably result in an appearance of increased density, which will also be true of the ethmoids if those cells are sufficiently pneumatized for accurate diagnosis by that means. It follows without saying that the adenoid mass participates in the acute inflammation, which involves in greater or less degree practically the entire mucous membrane of the upper respiratory tract at some period of the disease. Later, of course, as in all acute upper respiratory infections, the inflammation may travel downward to involve the larynx and tracheobronchial tree, but that is usually of secondary importance and may frequently be so mild as to show no symptoms whatever. It seems almost invariably the case that when the infection expends its force violently in the upper respiratory mucous membranes and in the glands it does not develop into a severe type of involvement in the lower respiratory tract.

This acute upper respiratory infection usually begins to subside in from three to four days, so that at the end of a week the temperature is normal, or nearly so, the throat is no longer acutely inflamed, and any exudate which may have been present on the tonsils, in their crypts or studding the lymphoid follicles of the pharyngeal mucous membrane proper has almost entirely disappeared.

It is at this juncture that the adenitis usually makes its appearance, although it may have had its beginnings before that time and without an appreciable intermission between its onset and the antecedent infection, but with a gradual passing over from the one into the other. The temperature may have been normal for from one to three days or even much longer and the patient may apparently be on the road to recovery when the glands develop their swelling, the temperature rises and the patient again becomes acutely ill. The throat is now no longer sore, although the tonsils may still be slightly swollen and may retain in their crypts a thin fibrinous exudate but without the acute inflammation which goes with a violent tonsillitis. The pharyngeal mucosa may still be slightly congested and the same may be true of the nasal membranes. Later in the course of the disease, and because of the anemia, both the tonsillar and pharyngeal membranes are usually quite noticeably pale but still with whitish fibrinous exudate in some of the tonsillar crypts, and with small areas of congestion surrounding the crypt openings. Also, standing out brilliantly against the pale background of the tonsil and accentuating it may sometimes be seen a delicate tracery of engorged superficial vessels in the thin tonsillar mucous membrane.

THE ADENITIS

The adenitis itself is usually bilateral but it is not uncommon for one side to be much more involved than the other. The glands are hard, tender and sore on movement of the neck, which is usually moderately stiff, although less so in the very young. The swelling is sufficient to be quite obvious to the most cursory examination, palpation not being essential to diagnosis. Palpable glands are present in almost every case of acute tonsillopharyngitis, as was previously indicated, but adenitis of such slight extent is not meant to be within the purview of this paper.

Coming on as it so frequently does after an apparent improvement in the antecedent acute illness, the development of the adenitis is nevertheless usually closely enough associated with it to be its undoubted sequel. The usual elapsed time is seven days from onset to onset and this was true in one-half the cases in the series. The time element is not important, however, except that it must be sufficiently short to establish beyond reasonable doubt that the antecedent infection is the primary cause of the adenitis, and this must, after all, be left to the judgment of the individual clinician. Another characteristic of the adenitis which should be mentioned is its tendency in some cases to subside and recur. This apparent spontaneous improvement is often disappointingly deceptive and in certain instances the case may persist in this way for several weeks before being seen by the surgeon.

TEMPERATURE

The temperature will usually vary with the variation in swelling of the glands. It runs quite high as a rule, the highest peak temperature recorded in any case included in the series having been 105 F. The average for the series was 103.3. In this connection it must be borne in mind that these patients were not all in the hospital during the entire course of the disease and the highest temperatures were doubtless sometimes missed in that way. The chief characteristic of the temperature, however, is its extremely fluctuating type, reminding one of the temperature of general sepsis. This fluctuation of temperature may be as much as 4 or 5 degrees in a few hours, although a 3 to 4 degree fluctuation is more common. The characteristic temperature fluctuations are graphically shown in the accompanying charts. The average duration of fever before operation was 13.6 days, which means the length of time the patient manifested fever due to the adenitis up to the time tonsillectomy was performed. The average duration of fever after operation was 3.2 days.

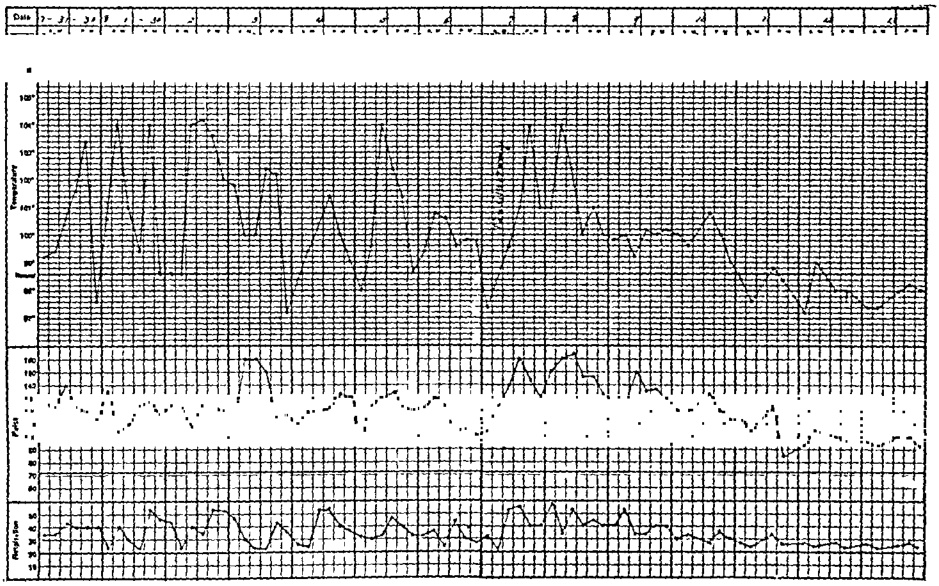

Chart 2.—Temperature in a second typical case of acute cervical adenitis. (Note that in this case the fever did not subside for forty-eight hours following tonsillectomy.)

PROSTRATION

The prostration is usually not marked until late in the disease and these little patients look surprisingly well during the remissions of the fever in the early stages. The rapid onset of anemia, however, results in a considerable amount of prostration later, which in the less vigorous child may be quite alarming at that stage. On the other hand, it is quite usual to have the parents remark that the patient does not seem sick except during the high febrile excursions and even then the depression may not be in proportion to the amount of fever exhibited. This is doubtless due to the essentially acute nature of the disease, coming on rather suddenly in an otherwise healthy child after an infection which has not been severe enough to undermine the child's strength and vitality especially and also to the fact that the elevation of temperature is not continuous but is characterized by remissions, giving the patient a rest from the deleterious effects of the fever and of the severe intoxication which is its cause.

ANEMIA

Anemia is one of the striking and constant characteristics of the disease. If the patient has been allowed to run along with the infection for two or three weeks the hemoglobin will be especially reduced, having been recorded in the series as low as 40 per cent and ranging from that up to as high as 78 per cent, the average for the series being 61$\frac{9}{11}$ per cent. The red cells are also reduced but not usually in proportion to the hemoglobin. This anemia is quite noticeable on looking at the patient's skin and mucous membranes, which are pale, especially the latter, frequently to such an extent that the pharyngeal mucosa does not show any sign of inflammation whatever. This may be a deceptive observation, although it is true that the acute manifestations in the phaynx have usually subsided materially before the adenitis supervenes. The anemia is properly treated by transfusion, which was done in this instance in three of the forty cases.

LEUKOCYTOSIS

Leukocytosis is marked, running as high as 34,100 in one case in the series, with an average for all of 17,177. A low leukocyte count is rarely seen, and the neutrophils are also frequently increased, up to 90 per cent and above. It seems impossible to form any definite opinion as to the presence or absence of pus from this indicator for the reason that the leukocytes respond so lavishly to the toxins without pus formation. The latter is likely to be indicated, however, when the white cells have apparently receded during the course of the disease and suddenly increased again, although even this may indicate only an increased extension of the inflammation to other previously uninvolved glands.

COMPLICATIONS

Complications frequently occur, of which the commonest is otitis media. This cannot properly be called a complication of the adenitis itself. It is undoubtedly a complication of the tonsillopharyngeal condition, which is the common antecedent of the two. Of this series thirteen had *otitis media* on one or both sides, and two of these ultimately developed surgical *mastoiditis* and were operated on, one on the eighth day and the other on the twenty-first day after tonsillectomy. This was in spite of the fact that the adenitis had subsided entirely in the meantime, which bears out the opinion, already expressed, that the otitis media had nothing whatever to do directly with the adenitis.

Nephritis, usually of the acute hemorrhagic variety, is the next complication in order of frequency. There were seven of these cases in the series and all were relieved by tonsillectomy, but the recovery was not so rapid as that of the glands, the kidneys taking from four to eighteen days to clear up entirely, or an average of 8.3 days for the series.

Pyelitis is encountered still less frequently but was seen as a complication in two cases of the series. When present, it can well account for some of the irregular temperature as it is impossible to differentiate the elevation of temperature caused by acute adenitis and by pyelitis. The pyelitis seems also to be relieved by removal of the cause of the adenitis, though the exact etiologic relationship of the primary and secondary infections to the kidney condition is difficult to ascertain.

No other complications were encountered in the series with the exception of pharyngeal abscess. In the series of cases there were three lateral pharyngeal abscesses. Two were drained at the same time the tonsils were removed; one two days before tonsillectomy. In these cases the adenitis was bilateral but was naturally worse on the side of the abscess. Their progress was just as satisfactory as in the cases without pus formation, with the exception mentioned later.

Suppuration of the glands is not an early development, rarely appearing earlier than one week after the onset of the adenitis and seldom even that soon. This sequel occurred in three of the cases, two of which were drained at the time the tonsils were removed, the third one week later. Even here the suppuration was thought to have begun before tonsillectomy was performed, as it was in one of the pharyngeal abscess cases and the suppurating gland was on the side of the abscess. It is my firm belief that this eventuality can be prevented in almost every case if the tonsils are removed soon enough, although if suppuration has already begun in the glands, even though only in its earliest stages, tonsillectomy will of course be of no avail and the case will go on to pus formation.

TREATMENT

Treatment by means other than tonsillectomy[4] I shall merely mention in passing. The usual rest in bed, local applications of ice and of various medicaments to the skin over the swollen glands or to the pharynx and tonsils, internal medication of various sorts, vaccines, light therapy and roentgen therapy have all been tried and found wanting. The use of x-rays may have its place in certain instances in which for some reason tonsillectomy is contraindicated or in previously tonsillectomized patients. Vaccines definitely do no good, and as for the other measures I can only say that my own impression is that their benefit is more imaginary than real and should be credited to the healing power of mother nature rather than to the particular therapy employed. However, should the condition yield to some of these or clear up spontaneously, it may not be necessary for the physician to face the necessity of making a decision regarding the advisability of removing the tonsils and adenoids. When, on the other hand, the disease manifests its usual characteristic of persistence in spite of all forms of treatment and the patient continues to have an irregular temperature, to lose weight and strength, to become rapidly anemic, and to behave generally in a manner discouraging both to the family and to the physician, it is time to consider something more efficacious in the way of treatment. At this stage the throat will be found to be almost entirely free from the usual evidences of acute inflammation and any hesitancy that might have restrained earlier action can be put aside without compunction. There is now no adequate reason for further hesitation, and the tonsils and adenoids should be removed without delay. It is true that often they may not look to be the source of the trouble, but their deceptive appearance must not be allowed to mislead.

It is scarcely necessary to mention that tonsillectomy does not confer immunity against cervical adenitis, although all authors agree that the disease occurs much less frequently in tonsillectomized children. However, the glands drain the pharyngeal mucous membranes as well as the tonsils themselves and may be involved from this source alone, in the absence of tonsils and adenoids. In these cases one is forced to resort to the less effective forms of treatment previously mentioned with the slow and unsatisfactory results familiar to all and so frequently encountered in just such cases.

When tonsillectomy is available as a form of treatment, it should be resorted to as early as possible after it is seen that the case is not progressing satisfactorily without it. In making this decision, too much time should not be allowed to elapse in the vain hope that the condition may yield to other forms of treatment, as it is only by early removal of the chief source from which the glands are being infected that the development of suppuration may be prevented. I am not deterred by the age of the patient, by the presence of fever, by the high white count and loss of hemoglobin or by the toxic condition. Neither does the fact of recent recovery from an acute tonsillopharyngitis serve as a deterring factor, so long as the throat is not then the seat of a frankly acute inflammation, which it never is by the time the glands are well established in their inflammatory reaction. It may be accepted as a fact that by the time the glands assume the proportions of an unmistakable acute adenitis the throat has subsided from its preceding acute stage and it is safe to operate. This statement is made in the full knowledge that these cases are practically always due to *Streptococcus hemolyticus*,[5] which organism has been obtained in cultures from the depths of the tonsils after removal in practically every case so studied, and from the pus from pharyngeal abscesses and suppurating glands when drained in this series of cases. There is a factor of local immunity established in the tissues on which the surgeon may depend and there seems to be no danger of increased general sepsis from the surgical intervention, as has been borne out by experience. In other words, it is hardly possible that if any great factor of risk existed in this procedure it could have been employed by one operator in a series of forty cases without a single suggestion of a mishap of any kind or description. Such, however, is the fact. I have had no more trouble from these cases so far as the operation or its sequelae have been concerned than from any other cases in my experience, whether selected risks or not.

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[4] Manning (footnote 1). Rosenberg, L. C.: Roentgen Treatment of Acute Cervical Lymphadenitis, Am. J. Dis. Child. **37**: 537 (March) 1929. Plate, A.: Epidemic Appearance and Treatment of Swelling of Cervical Lymph Glands, Deutsche med. Wchnschr. **55**: 62-63 (Jan. 11) 1929. Holzman, J. L.: Acute Cervical Adenitis, Northwest Med. **26**: 557-560 (Nov.) 1927. Bruce, G. G.: The Pathology and Treatment of Cervical Glands in Children, Brit. M. J. **1**: 1030-1035 (June 8) 1929.

[5] Howarth and Gloyne; Friedman and Greenfield; McClanahan, and Wagner (footnote 1).

In addition to these negative observations and to the lack of ill effects of any kind from the operation, the positive results are more than gratifying. In every case the improvement has been remarkable, in many almost miraculous. Occasionally, it is true, the glands have subsided slowly, over a period of one week, with some continuation of fever during that time. It might almost have been said that these patients would have made as good a recovery without the operation as with it, although observation of the course of the disease up to the time of operation convinced all observers that such would not have been the case. These were the least favorable results. The most spectacular were those in which the glands began to subside within twelve hours of the operation and within twenty-four hours were nearly normal, with normal temperature at the same time. From twenty-four hours to three days from the time of operation is the usual period required for subsidence of both glands and temperature, and the average time for the series was 3.2 days, as mentioned before.

CONCLUSIONS

If this paper has any justification whatever it is because it advocates and defends the principle that it is *safe*, not dangerous, to remove tonsils and adenoids during the height of an acute anterior cervical adenitis, and that such treatment is the most satisfactory in its results of any yet advocated for the condition. Hence, the paper defends the performance of a surgical procedure which is contrary to preconceived opinion, recognizing the fact that the operation may frequently be done in such cases in as short a time as two weeks, or even ten days, from the date of onset of an acute tonsillopharyngitis. This defies a certain prejudice known to exist against early tonsillectomy following an acute tonsillar infection. With this prejudice, as applied to cases in which definite therapeutic benefit promises to accrue, I do not agree. I believe that the experience of this series of cases amply supports the view that we should not permit preconceived opinion based more on theory than on experience to dissuade us from availing ourselves of whatever therapeutic measures are at hand when those measures seem to be and eventually prove themselves to be most valuable in the management of the particular condition with which we are dealing. The problem under consideration fulfils these requirements and for that reason I unhesitatingly recommend tonsillectomy as the treatment of choice in acute anterior cervical adenitis which follows a tonsillopharyngeal infection and fails to show definite signs of subsiding spontaneously within one week.

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ABSTRACT OF DISCUSSION

Dr. William A. Defnet, Detroit: I am greatly encouraged in viewing this problem of surgical intervention for the relief of cervical adenitis in children. I am sure that all have had that mental hazard to overcome as to just when is the proper time to operate on these patients. As Dr. Baum has so aptly stated, it seems the logical and proper procedure to pursue under certain given circumstances. Of course, many are still governed by age-old conservatism and therefore still adhere to the old principle of doing tonsillectomy after all, or a greater amount, of the cervical disturbance has disappeared. I am still of the opinion that surgical intervention must not be regarded too enthusiastically in these cases, as my observation has been that there is danger of pulmonic infection, which may or may not be due to anesthesia or a combination of anesthesia and toxicity due to glandular involvement. Of course, this can be greatly overcome by the use of tracheobronchial anesthesia. I was surprised to note the small amount of upper bronchial involvement in the cases reported by Dr. Baum. In my observation, both in private practice and in the clinic, in these types of cases there is considerable involvement of the bronchial tract, and that factor has discouraged me from instituting surgical procedure; but this should not deter one from operating to relieve the subacute conditions or before permanent injury to other areas occurs. I agree heartily with Dr. Baum that, particularly in cases of adenitis following scarlet fever and in cases developing hemorrhagic nephritis, early surgical intervention should be instituted. Dr. Baum is to be congratulated on the careful and painstaking details which he has enumerated in his cases. He has opened a new field of thought for many in dealing with this perplexing problem.

Dr. Harold M. Hays, New York: I believe the author feels that acute tonsillopharyngitis with cervical adenitis is far more serious than acute tonsillitis in children, but I do not believe that he means to convey the idea that he would operate on children who are suffering from acute tonsillitis with a complicating adenitis. There is no doubt that tonsillopharyngitis cases are extremely serious and the complications do not stop there, as Dr. Baum states. Dr. Murray H. Bass listed various complications of a serious nature, among which were mesenteric inflammations, sometimes actual peritonitis, resulting from an inflammatory condition of the pharynx. If the patient is to get well quickly, it is necessary to do something more than carrying out the usual conservative treatment. I agree with Dr. Baum that the tonsils and adenoids should be removed regardless of fever or how severely ill the child is. This brings up another point of extreme importance: What shall be done with children who have different types of infection, cervical adenitis, acute infections of the ears and often mastoiditis? Which one of these is causing the fever? I recall having such a child under my care a number of years ago. The ear drums were incised but the cervical glands still continued inflamed. Whenever I was out of town another consultant was called in and the diagnoses ranged from erysipelas to subacute meningitis. By conservative treatment this child got well and finally the tonsils and adenoids were removed, but he would have recovered far more quickly if the tonsils and adenoids had been removed at an earlier date. Another serious complication of this type of infection is retropharyngeal abscess. Such cases are extremely dangerous. In one such case an external operation had been done but the tonsils had not been removed and therefore the infection continued. In another case an enormous abscess in the throat developed which was incised but the cellulitis was so great that there was considerable obstruction to breathing. The child was brought to the hospital, where the tonsil was enucleated. Unfortunately, the infection had spread to one of the larger arteries and on the following day a rupture of such an artery took place with immediate death. Lastly, I should like to make the point of removing the tonsils and adenoids at the time the mastoid operation is performed, particularly in those cases in which enlarged cervical glands are present.

Prof. Francesco Lasagna, Parma, Italy: Many years ago I studied the connection between the tonsils and adenoids and the lymph glands of the body. I did many experiments in anatomic pathology and also on animals, and it was possible to establish more readily than one would think the connection between the tonsils and the interior part of the throat. It is possible for infection that is not in the glands of the neck to have immediate connection with the glands in other parts of the body.

Dr. E. Lee Myers, St. Louis: Last winter I was seeing in consultation children that were thought not well enough to go to school, but not sick enough to stay at home, who had large glands in the anterior cervical region. The thing that struck me was the enlargement of the gland. I asked the family whether the child had been sick, and almost invariably I could get no history of acute tonsillitis. There was an epidemic of streptococcic sore throat and naturally I attributed it to that. The question came up as to when the tonsils should be taken out, and as these cases are always referred by the pediatrician or the family physician, the orthodox belief was encountered, as it always is, and it is impossible to get them to permit the removal of the tonsils. There were about six of these cases, and there were no bad results. I would say to Professor Lasagna that I am not familiar with the work of the Italian professor but I am glad to have him concur in the investigations of our confrère Dr. William V. Mullin, who has brought the same thing before us.

Dr. E. S. Strout, Minneapolis: I should like to ask the author what anesthesia he uses in the presence of acute hemorrhagic nephritis.

Dr. Harry L. Baum, Denver: The proper time to operate depends on the judgment of the surgeon. He must not be held back by the conservatism of the internist. The internist is afraid of surgery in the presence of acute symptoms. There is no difference between this and any other tonsil operation. One should go right ahead and take out the tonsils and adenoids the same as in any other case. The patient's temperature may be 100, 99 or 103 but that should not be allowed to stand in the way. Unless there is pharyngeal pus—which there will be in a small percentage of cases and which of course must be drained—there will be no difference in the operation from any other tonsillectomy, but the result is different because of the marked improvement in the patient's condition in the forty-eight hours following operation. This is really the pediatrician's problem primarily because we as laryngologists will not be called on to see the patients unless the pediatrician is educated to the need for surgery. Dr. Myers said he did not always have a clear history of antecedent tonsillitis in his cases of adenitis. Neither have I in all my cases but I have not included those cases in this series. All of these patients had a pediatrician in attendance, with the exception of a very few who had parents sufficiently intelligent to give a definite history of sore throat preceding the development of the tonsillitis. I want to say that this procedure is now common practice in Denver. The pediatricians there have learned its value and I believe that almost every one of them recognizes the situation when it arises, and calls on one of our laryngologists for his assistance. So that many more cases have been done than the small series on which I have based the paper. So also have many doubtless been done by men in other cities, but I have not chanced to come across them in the form of reports in the literature. Answering Dr. Strout's question regarding the anesthesia in cases of hemorrhagic nephritis, I use ether as a routine for these operations in all young children, even though they may have kidney complications.

Higher Education in America.—Science makes slow progress in the field of higher education, and for several reasons. . . . College administrators have not been overenthusiastic in their reception of the new day, partly for the reason that they find it disquieting. That which undermines tradition, questions established practice, or annihilates one's pet theories, is not likely to be received with open arms upon first aquaintance; and yet it seems clear that those who rely upon the methods and instruments of science are the ones who will soon, if they do not already, sit in the seats of power. . . . America has pursued her way in education, as in nearly everything else, stumbling here and halting there, moving forward in a zigzag fashion. She has found it difficult to set up remote goals and to strive to achieve them. She has compromised with the future and has pursued the paths of least resistance. . . . The most hopeful thing about the whole movement is that the experts in the various fields of learning are devoting themselves in increasing numbers to the study of their common problems. When the leaders in any field begin to question and to check their purposes, their work and their results, and when they call to their assistance experts in related fields, then and only then does there exist a basis for intelligent progress.—Kent, R. A.: Higher Education in America, Boston, Ginn & Co., 1930.

Clinical Notes, Suggestions and New Instruments

RELAPSING FEVER IN CENTRAL TEXAS

Burford Weller, M.D., and G. M. Graham, M.D., Austin, Texas

Relapsing fever, or African tick fever, prevailed in epidemic proportions in New York and Philadelphia during the year 1869; Meader has since reported five cases from Bear Creek Canyon, Colorado. Available literature discloses no other mention of this disease in the United States. Therefore, these cases may be of interest.

Four boys, aged about 16, explored a cave in the Colorado River valley, seventy-five miles above Austin. On emerging, they noticed attached to their legs several small ticks, which easily brushed off. Exactly six days from this time, three of the boys developed malaise, leg ache, headache, and elevation of temperature. The fever rapidly mounted to 103 or 104 F., the pains in the head and body became more severe, and a persistent sensation of chilliness, with nausea and vomiting, added to their discomfort. The blood showed a moderate leukocytosis, from 13,000 to 14,000 cells per cubic millimeter with a normal differential count and no malarial parasites. These symptoms continued for four days; then a macular rash appeared on all parts of the body, followed in a few hours by decline of the temperature to normal. During this decline, and for hours afterward, the patients were drenched by profuse sweats. The rash disappeared after twenty-four hours, leaving no discoloration.

When the fever subsided the patients, though weak, felt well, and remained so for an interval of from four to five days, when the second attack began.

This relapse was identical in all respects with the initial attack, except that it was milder and shorter, and there was no rash. The leukocyte count was slightly higher than before, the urine showed a trace of albumin, and the blood culture was negative.

The second afebrile interval varied in the boys from four to seven days, and was followed by a return of all the symptoms. During this third attack, actively motile spirochetes were found in the peripheral blood. Four-tenths gram of neoarsphenamine was given intravenously, resulting in the disappearance of all symptoms within eighteen hours.

Later, one of these patients relapsed after a ten day afebrile period and was given 0.6 Gm. of neoarsphenamine, with immediate effect. However, fourteen days after this, he again became sick, spirochetes were found in his blood, and more treatment was administered. Another was free from all symptoms for twenty-one days and then relapsed, necessitating more arsphenamine. The third patient has remained well.

During the investigation of the source of these cases, one of us (G. M. G.) visited the tick-infested cave. Several hours later, he found and removed one well fed tick from his body. On the seventh day following, he developed malaise, frontal headache, pains in the back and legs, and elevation of temperature. These symptoms steadily increased in intensity for eighteen hours, when spirochetes were demonstrated in the peripheral blood, and 0.3 Gm. of neoarsphenamine was given intravenously. This dose had no apparent effect; the temperature reached 104 F., and there was slight delirium, nausea and vomiting. The most unpleasant sensation was a penetrating, persistent coldness, more than a chilliness, which lasted twelve hours, during which the patient required several blankets and hot pads. A second dose of 0.6 Gm. of neoarsphenamine, eighteen hours after the first, had immediate effect, the temperature began to decline and within twelve hours was normal, and all symptoms had disappeared. As in the previous cases, this drop in temperature was accompanied by repeated, drenching sweats, causing intense thirst. There was no rash due to early treatment, and no relapse after three weeks.

The salient features of this infection seemed to be the persistent chilliness, the macular rash and the large amount of fluid lost by perspiration.

Inspection of the cave showed the floor covered with three inches of dry, powdery sand, which is literally alive with ticks, a handful of sand yielding thirty or forty of different sizes. They were identified by Major Wesley C. Cox, U. S. Army, Fort San Houston, as *Ornithodoro turicata*. The cave is frequented by goats and sheep; also probably wild animals, such as bats, foxes, skunks and rabbits. The distribution of these infected ticks, how long they have been infective in this locality, and whence came the infection are all interesting problems to be investigated.

Some of these ticks were applied to the shaven, abraded skin of three rabbits, allowed to feed for fifteen minutes, and then crushed and rubbed into the abrasions. Two of the animals died within twenty-four hours, probably from the extreme toxicity of the tick bites; the third became violently ill on the sixth day after inoculation, and, before death, actively motile spirochetes were found in the peripheral blood. Examination after the death of the animals showed nothing characteristic.

The spirochetes found in the blood varied in size; the typical ones were from 18 to 25 microns in length, having from ten to fifteen spirals. Their movements were rotary, backward and forward, and lashing. Some were so actively motile that the slide could not be moved quickly enough to follow them. Others were slower, and, as motion gradually ceased from some cause, would coil up, becoming almost unrecognizable. These coiled forms and tangles of two or more spirochetes were numerous in the peripheral blood. The definite, actively motile organisms were not very numerous in any of the cases, even at the height of the paroxysm, one spirochete to ten microscopic fields being about the average, though at times three or four could be found in one field. Never did they anywhere nearly approximate the number of erythrocytes, as described by some observers. They were best demonstrated by using a thin blood smear with dark field illumination, and, for study, could be kept alive in citrated blood for at least twenty-four hours. As yet, the strain has not been determined.

Norwood Building.

Council on Pharmacy and Chemistry

COMMITTEE ON FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

KEMP'S SUN-RAYED PURE TOMATO JUICE

Manufacturer.—The Sun-Rayed Company, Division of Kemp Brothers Packing Company, Frankfort, Ind.

Description.—A homogenized, pasteurized tomato juice seasoned with salt, packed by patented process.

Manufacture.—Vine ripened tomatoes from north central Indiana are used. They are compressed under constant pressure without any heating, beating or agitation. This procedure excludes so far as possible the presence of air which is destructive of vitamin C. The juice is passed through a straining screen.

The expressed juice and particles of pulp are homogenized to a permanent suspension. The product is seasoned to taste with salt, pasteurized by the flash method used in creameries, bottled or canned and again pasteurized.

Chemical Composition.—

(Proximate analysis)	Per Cent
Total solids	4.8
Ash	0 78
Sodium chloride	0.4
Fat (ether extract)	0.03
Protein (N × 6.25)	0 9
Crude fiber	0 1
Total carbohydrate (by difference) other than crude fiber	3.0

Calories.—

0.16 per gram.
4.5 per ounce.
72. per pound.

Vitamins.—The vitamin C content is but slightly less than that of fresh untreated tomato juice.

Claims of Manufacturer.—Sun-Rayed Tomato Juice is a refreshing beverage, rich in vitamins A, B and C, and valuable for infant feeding. Because of its low Calorie content it may be used in weight-reducing diets. It is recommended for the many uses to which tomatoes may be applied because of their valuable nutritive properties.

This tomato juice carries the red pulp in suspension, for which reason it has a much greater vitamin C potency than juices without the pulp. The vitamin C of the raw tomatoes used is only very little impaired by the manufacturing process.

WHITEFIELD' GENUINE ORANGE JUICE

Manufacturer.—Whitefield Citrus Products Corporation of California, Ltd., Fullerton, Calif.

Description.—An unsweetened, uncolored, sterilized orange juice in hermetically sealed bottles or jugs containing a partial vacuum of low pressure.

Manufacture.—The oranges are scrubbed by revolving brushes in the presence of hot water and steam. The peel is removed in peeling machines, care being taken not to cut through the "corky" layer. The peeled oranges are subjected to live steam and crushed in crushing machines, exposed parts of which are constructed of monel metal. The sieving screens are silver. The receiving tanks for the expressed juice are glass lined.

After the juice has been sieved, the subsequent processing is in an atmosphere of carbon dioxide. It is subjected to mild heat treatments and later sterilized by a special process. These treatments are designed to affect the natural vitamin values to a minimum degree. The juice is cooled to 70 F. and poured into bottles or jugs which are capped under reduced pressure of "3 inches mercury." The caps and containers are carefully heat-processed before use.

No artificial color or preservative is used. The elaborate processing tends to retain flavor and food values of the natural fruit. Utmost care is given to cleanliness and sanitation of plant and equipment.

Chemical Composition.—(Proximate Analysis)

Specific gravity 15 C./15 C	1.055
Total solids	14.2%
Acidity by titration as citric	1.4%
Hydrogen ion concentration as *p*H	3.4
Ash	0.42%
Alkalinity of ash (cc. N-acid to neutralize 1 gram)	11.1 cc.
Fat (ether extract)	0.1%
Volatile oils	0.01%
Protein (N × 6.25)	1.1%
Crude fiber	0.0%
Sucrose	0.0%
Reducing sugar as invert	10.1%
Total carbohydrates, by difference	11.1%
Artificial color	None
Chemical preservatives	None

Micro-Organisms.—

Yeasts (Sabouraud's Agar)	No growth
Bacteria (inoculated gelatin, 20 C. for 48 hours)	Negative
Bacteria (inoculated agar, 37 C. for 24 hours)	Negative
Dextrose agar (using pour) plates, 37.5 C., 48 hours	Negative
Litmus milk, 37.5 C	Unchanged

Vitamins.—

A + +
B (complex) + + +
C + + +

Calories.—

0.50 per gram
14 2 per ounce
227. per pound

Claims of Manufacturer.—The process of manufacture insures a uniform orange juice for use throughout the year. The nutritional value is practically that of fresh orange juice. As a result of production methods the resale cost approximates that of its equivalent in fresh oranges on the market.

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SATURDAY, DECEMBER 13, 1930

ADDISON'S DISEASE

Appreciation of the importance of the suprarenal glands for life came primarily from the clinic and the necropsy room. Chronic suprarenal insufficiency was first described by Addison in 1855. "The disease develops in the third and fourth decade of life, usually insidiously, with adynamia and apathy. To these are added disturbances of the digestive tract (constipation alternating with diarrheas), pigmenting of the skin and mucous membranes: the patients succumb under a gradually increasing cachexia, not rarely with stormy terminal manifestations; autopsy almost always shows disease of both suprarenals, mostly tuberculous caseation." Thus reads the classic description of Addison's disease. The indispensability of the suprarenals has since been abundantly verified by extirpation experiments on various animal species.

In reviewing the physiologic literature of this subject, Britton [1] designates it as perhaps one of the most baffling facts to experimental physiologists today that all common laboratory animals from which the suprarenal glands (and cortical accessory tissues when present) have been removed, whether by the single or the two-stage operation, definitely die within a short period. The complete operation can be conducted with little trauma, in a comparatively short time—from ten to thirty minutes in the case of most animals—and the tissue loss per se is extremely small—roughly, one three-thousandth of the body weight. The most skilful surgical technic, Britton concludes, combined with optimal postoperative attention, has not lessened the 100 per cent mortality that follows, usually within a week or ten days, complete removal of the suprarenal tissues.

The discovery of a potent hormone, epinephrine, in the suprarenal medulla, and the proof of its secretion into the blood stream under certain types of physiologic provocation, naturally directed attention to this substance as an indispensable agent in living beings. However, the expectations in this respect have been completely shattered. On the one hand, removal of the suprarenal medullas without serious injury to the cortical structures is not a fatal operation; and, on the other hand, administration of epinephrine does not exhibit beneficial results in cases of suprarenalectomy. This hormone does not function in replacement therapy. Ablation of the suprarenal cortex is always fatal; and in recent months suitable extracts of the cortical structures free from epinephrine have been found to be uniquely potent in preventing the untoward effects of loss of the suprarenals.[2]

A new era in the study of the suprarenals seems at length to have been ushered in. Addison's disease is being reconsidered in the light of the newer physiologic studies. Wells [3] has recently pointed out that most cases of Addison's disease are associated with nearly complete destruction of the suprarenal glands, usually by tuberculosis, rarely by secondary neoplasms and amyloidosis. In such cases, no information is offered as to what part of the clinical picture depends on loss of cortical function and what part depends on destruction of the medulla. More instructive are the relatively infrequent cases in which there is found a selective destruction of the cortical elements alone. This condition, often inadequately called "atrophy" of the suprarenal glands, is apparently responsible for about one tenth of the cases of Addison's disease. Brenner,[4] who has surveyed records of many cases, drew the conclusion that the symptoms of Addison's disease occur only when most of the cortex is destroyed. The symptoms may be present, it is shown, even if the suprarenal medulla and the chromaffin tissues are normal; or again they are sometimes absent in cases in which there is almost complete disappearance of the chromaffin system. Incidentally, it may be recalled that in some cases Addison's disease has been described even when the suprarenal glands have apparently been intact. The possibility of hypofunction of the cortex, as well as the recognized difficulty in definitely diagnosing the condition, Britton asserts, must however be emphasized in this connection.

At the University of Chicago, Wells [3] has had opportunity in cases of Addison's disease to make postmortem examination of suprarenals exhibiting what has been termed "simple atrophy" involving an extensive, sometimes an almost complete, destruction of the epithelium of the cortex with less or practically no destruction of the medullary tissues. Cases of undoubted Addison's disease were not found in which the medulla was destroyed while the cortex was for the most part intact, although cases of such selective medullary destruction without the picture of Addison's disease have been observed. Therefore, the dependence of Addison's disease predominantly on destruction of the cortex of the suprarenal glands seems to be well established. Wells adds that the bilateral character of the lesion indicates its hematogenous origin. It is not associated with vascular lesions or occlusions. The resemblance both of the tissue damage and of the regenerative changes in the surviving cortical epithelium to the processes seen in diffuse toxic necrosis of the liver ("acute yellow atrophy") suggests to Wells that the suprarenal condition also is the result of a toxic necrosis by some poison selectively injuring the epithelium of the suprarenal cortex. The histories of the cases so far reported, however, give no satisfactory clue as to the source or nature of the hypothetic poison. It is a satisfying circumstance that human pathology—nature's experiments on man—and animal experimentation have so convincingly supplemented each other in relation to *the serious disorder described by Addison.*

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[1] *Britton, S. W.:* Adrenal Insufficiency and Related Considerations, Physiol. Rev. **10:** 617 (Oct.) 1930.

[2] *Suprarenal Function, editorial,* J. A. M. A. **95:** 1506 (Nov. 15) 1930.

[3] Wells, H. G.: Addison's Disease with Selective Destruction of the Suprarenal Cortex, Arch. Path. **10:** 499 (Oct.) 1930.

[4] Brenner, O.: Quart. J. Med. **22:** 121 (Oct.) 1928.

IS THE COMMON COLD DUE TO A FILTRABLE VIRUS?

The common cold is one of the most devastating of human maladies—not that it leads to large numbers of deaths, but it does contribute largely to the type of morbidity classed as minor ailments. The mere discomfort caused by colds is itself of sufficient moment in relation to human happiness to warrant steps toward prevention or prompt relief. It has been said[1] that, if what seem to be "mere colds" were less commonly neglected, tuberculosis would more often be caught in its incipience and pneumonia and diphtheria would often be prevented. Furthermore, aside from the mere discomfort of such a minor ailment as a common cold, it may interfere with the customary routine that wage earning requires. Morbidity thus entails loss of income that runs into large figures when expressed in dollars and cents.

There have been many attempts to discover an infectious microbiotic agent responsible for the genesis of the common cold. The nasopharynx is the habitat of many varieties of bacteria in health as well as in disease, for none of which it has been possible to fix responsibility with any approach to certainty. The common laboratory animals are not afflicted with maladies that are closely analogous to the cold in man. Such animal diseases as distemper in dogs and snuffles in rabbits are quite dissimilar, from an etiologic point of view. When the higher apes were chosen for investigation, it was found that, in respect to organisms present, the flora of the upper respiratory tract resembled that in man to a surprising degree. Dochez, Shibley and Mills[2] of the Presbyterian Hospital, New York, were able to transmit characteristic common colds to them by instillation of a filtrable agent from human nasopharyngeal washings obtained within the first twenty-four hours of symptoms. The filtrates from healthy persons were not effective. Other investigators have reported the possibility of reproducing the common cold in human volunteers by introducing into their nasal passages small amounts of Berkefeld filtrates of the nasal secretions from individuals suffering from natural colds.

It has happened in most of these observations[3] that small gram-negative anaerobic bacteria could be cultivated from the ordinary Berkefeld filtrates. Recently Long and Doull[4] of Johns Hopkins University have attempted to transfer colds to healthy young women volunteers by means of filtrates containing the filter-passing anaerobes and by means of bacteria-free filtrates. These volunteers were placed in strict isolation and every precaution was taken to protect them from sources of natural infection. The experiments were *carried out during the months of June and July, 1930,* in which period the incidence of colds in Baltimore was at a low level. The nasopharyngeal washings were obtained during the first forty-eight hours of the natural colds. Positive developments were secured even with specially prepared filtrates that absolutely prevented the passage of either aerobic or anaerobic organisms. The observations seem to substantiate the conclusion that the infectious agent of acute upper respiratory infection (the common cold) is a filtrable virus.

GRAVITY AND THE CIRCULATION

There are surprising differences in the ease with which persons who are rated as being in excellent health and do not exhibit known circulatory defects make adjustments to certain changes in posture. Most of us are frequently altering our position from one pose to another. We arise, stand still, walk or exert ourselves in many ways without realizing that the consequent changes of bodily posture are attended with notable circulatory changes representing adjustments that make the variations in the body's position comfortable as well as physiologically effective. Not infrequently, healthy persons feel real discomfort, which may range from a vague sensation to acute dizziness or even fainting when they change from a reclining position to an upright posture. There is an evident circulatory embarrassment involved in this condition. Its nature is gradually becoming clearer as the result of careful investigation. An immediate factor that needs adjustment by the bodily mechanism is associated with the effect of gravity on the circulation. There will be the natural tendency for blood to stagnate in the lower parts of the body when the latter is shifted from a horizontal to a vertical position. To avoid this undesirable interference with the circulation, the vasomotor mechanism promptly tends to come into play in most persons. The first adjustment results in an increase in the rate of the heart accompanied by a rise of diastolic pressure and a narrowing of the pulse pressure. The systolic pressure shows no extensive change; it may rise or fall or be unchanged. The narrowing of the pulse pressure is of sufficient magnitude to suggest a much decreased output per beat for which the faster rate of the heart may not be able to compensate and thus to maintain the reclining circulatory minute volume. Presently, as a rule, there is a widened pulse pressure, particularly when muscular movements come into play. The pulse pressure in exercise is widened, mainly by a rise of the systolic pressure; in standing, the pulse pressure is narrowed as a result of the rise of diastolic pressure. In exercise the factors making for the return of blood to the heart are in evidence—augmented respiration, muscular movements—while in quiet standing these afford almost no help.

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[1] Report on National Vitality, Bull. 30, Committee of One Hundred on National Health, Washington, Government Printing Office, July, 1909

[2] Dochez, A. R.; Shibley, G. S., and Mills, Katherine C.: A Study of Acute Infection of the Respiratory Tract in the Ape, Proc. Soc. Exper. Biol. & Med. **26:** 562 (April) 1929.

[3] Compare, for example the studies of G. B. Foster, Jr. (The Etiology of Common Colds, J. A. M. A. **66:** 1180 [April 15] 1916), and of P. K. Olitsky and J. E. MacCartney (Etiology of Typhus Fever, J. Exper. Med. **38:** 691 [Dec.] 1923).

[4] Long, P. H., and Doull, J. A.: Etiology of Acute Upper Respiratory Infection (Common Cold), Proc. Soc. Exper. Biol. & Med. **28:** 53 (Oct.) 1930.

Evidently the distress experienced by many persons during simple standing for even a few minutes is related to the failure of the circulation to supply sufficient blood to the higher nervous centers. Evidence of stagnation elsewhere has recently been obtained anew by Turner and her co-workers[1] at Mount Holyoke College. Observation of persons tilted at different angles while at rest on a movable holder suggested a distinct reflex for the response to gravity as contrasted with exercise, though both are characterized by increased heart rate. Exercise shows a widened pulse pressure, standing a narrowed pulse pressure. One of the early effects of standing without movement is the increase in the blood content of the legs. The average increment in leg size represents the temporary detaining in the part of the body concerned of about 4.6 per cent of the total blood in circulation, or between 200 and 300 cc. of blood. It also tends to stagnate in the abdominal region during standing. The effect can be lessened by such support as a bandage gives. Of course, posture and abdominal tonus are effective also, when they are suitably developed.

It is suggested by Turner that the vasoconstriction which serves to raise the diastolic pressure in standing and which shows signs of failure at the time of subjective discomfort is distinctly, as in hemorrhage, a compensatory mechanism. As in that case, the lessened output of the heart per minute as well as per beat is an essential element of the picture and is due to lessened return of blood from the veins. This output is still adequate for the needs of the brain in the many who stand successfully, but it is wont to fail more or less as the quiet erect position is held; and in poor subjects the time of successful functioning of the medullary centers may be brief indeed. It is of the greatest importance, Turner adds, to note that the methods which normally assist in returning blood to the heart are those which relieve this circulatory embarrassment in standing. Deep sighs are frequent in these uncomfortable persons; restless movements are often almost beyond their control; they stand much better during the abundant circulation which follows a meal when return from the digestive tract would be especially facilitated; they are aided by abdominal supports. If the prevention of blood "stagnation" in the upright posture may be secured by proper physical training, the prosecution of further studies as to the methods to be employed seems well worth while.

DIET IN CHRONIC GASTRIC ULCER

The successful treatment and healing of gastric ulcers involves many factors of uncertainty, reflected in the multiplicity of suggestions from therapeutists. For example, a recent writer asserts that the establishment of proper habits of eating, the avoidance of notoriously irritating articles of food which offend the gastric organ because of chemical, mechanical or thermal insults, the minimization of worry, strain and hurry—at least at meal times—the removal of infection from teeth, tonsils and accessory sinuses, the prevention of chronic constipation by regulation of diet and exercise, and the surgical removal of disease elsewhere in the abdomen are measures that tend to lower the incidence of ulcer. He adds that these are essential features in the treatment of ulcer whether surgery is employed or not.

The foregoing, by no means an antiquated statement, reads like a hygienic admonition that should favor recovery from many human maladies. It indicates how indefinite is our knowledge of this disease, of which even the etiology can scarcely be said as yet to have been ascertained. Experimentation is singularly difficult in human cases; hence it is proving to be a great advantage that characteristic gastric ulcer can be developed with considerable success in experimental animals. In the latter it has been observed that relative hyperacidity and hypernormal secretion such as are associated with partial pyloric stenosis are not necessarily such important factors in the delay of healing as was formerly assumed.

Mechanical factors, however, can delay the healing of an acute lesion of the gastric mucosa, and acid makes the ulcer more irritable or susceptible to bleeding. Fauley and Ivy[1] have further pointed out that coarse particles of food remain in the stomach longer than fine particles, which obviously results in more prolonged motor activity of the stomach and increases the trauma to an acute lesion of the mucosa. This would be pronounced in a patient with pylorospasm. In studies at the Northwestern University Medical School, Chicago, they have demonstrated that certain types of acute experimental lesions of the gastric mucosa are definitely harmed by a "rough" diet. For instance, a simple ulcer of the rabbit's stomach produced by excision heals within thirty days, irrespective of the consistency of the diet. A similar ulcer, but with a silk suture in its base, will heal if the rabbit is fed a soft diet but will tend to become chronic if the rabbit is fed a rough diet. Therefore Fauley and Ivy conclude that in chronic ulcer in man a soft diet would facilitate the healing of the ulcer, which confirms clinical experience and supports the use of a diet of the character of that employed in the generally accepted therapeutic procedures for gastric ulcer.

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[1] Turner, Abby H.; Newton, M. Isabel; and Haynes, Florence W.: The Circulatory Reaction to Gravity in Healthy Young Women, Am. J. Physiol. 94: 507 (Sept.) 1930.

[1] Fauley, G. B., and Ivy, A. C.: Experimental Gastric Ulcer, Arch. Int. Med. 46: 524 (Sept.) 1930.

Current Comment

CULTURE OF TUBERCLE BACILLI

Improvement in bacteriologic technic is bringing the culture of tubercle bacilli well into the range of everyday practice. It is already two years since Corper[1] showed the superiority of his cultural method over guinea-pig inoculation. In a recent report from the research laboratories of the Municipal Tuberculosis Sanitarium, Chicago, Sweany and Evanoff[2] describe a modification of Dorset's egg medium, cream being used instead of glycerin, which they have found superior to Corper's medium especially in growing the bovine bacillus. Von Húth and Lieberthal,[3] reporting from the Royal Hungarian Pázmány Péter University at Budapest, also prefer a modified egg medium to Corper's medium. They used the modification of Hohn, in which meat extract, sodium chloride and peptone are added and they found that this medium grew colonies in from eight to twenty days, whereas the glycerin-potato medium, inoculated at the same time with the same material, showed colonies in from three to five weeks. In several cases, they say, the cultures were positive when the guinea-pig test was negative. In these cases there was minimal functional defect in the diseased organ (all their cultures were made for suspected renal tuberculosis). Operation disclosed incipient tuberculosis of the kidney. There is still a good deal of disagreement as to the right method to be used to destroy contaminating organisms. Corper abandoned 3 per cent hydrochloric acid in favor of 6 per cent sulphuric acid. Sweany and Evanoff still prefer 3 per cent hydrochloric acid and find that 12 per cent sulphuric acid is "entirely too strong." Von Húth and Lieberthal, on the other hand, found the 10 per cent sulphuric acid recommended by Hohn to be of insufficient strength and used a 15 per cent solution as prescribed by Lowenstein. They found this strength sufficient to exclude all contaminators except molds without injuring the tubercle bacilli. Indeed, the latter were found so resistant to this strong mineral acid that they survived exposures four times the length of the customary twenty minutes. Von Húth and Lieberthal, unlike the workers in the Municipal Tuberculosis Sanitarium, found no difficulty in growing the bovine type of bacillus on glycerin-potato. It is thus evident that a final technic for cultures cannot be established, though it is equally clear that any competent bacteriologist can now find the tubercle bacillus more quickly and more accurately by culture than by inoculation.

THE PROPHYLAXIS OF COCAINE AND ALLIED INTOXICANTS

Since the publication by the chairman[1] of the Committee for the Study of Toxic Effects of Local Anesthetics of the American Medical Association of the conclusions of that committee in 1924, there has grown up a literature on the prevention of cocaine intoxication by the use of depressant drugs and particularly of the compounds of barbituric acid. Two years ago, Guttman[2] presented an impressive series of 391 operations under cocaine anesthesia with only two reactions, one of which was attributed to hysteria and the other to faulty technic in the administration of the prophylactic (0.2 Gm.) dose of phenobarbital. This may be compared with a previous series of 416 operations under cocaine, but without the prophylactic, in which no less than 19 per cent of the patients showed evidence of cocaine intoxication. Others have reported similar results. Martin[3] reported that the use of 0.6 Gm. of soluble barbital given by mouth about one hour before operation under procaine anesthesia will prevent the development of serious toxic symptoms in most instances. He added that investigation of the subject was far from complete or conclusive and recommended an independent study of the different salts of barbituric acid to determine their individual efficiency in the detoxication of local anesthetics. Such a study is now reported from the department of Pharmacology of the University of Wisconsin.[4] The minimal tolerated and the minimal lethal doses of cocaine, procaine or butyn for rabbits were determined without protection and after the administration of various depressants. The depressants found effective and in the order of their efficacy are urethane (ethyl carbamate), chloral hydrate, paraldehyde, barbital, phenobarbital, and isoamylethylbarbituric acid, the last named being the most effective. This order also represents the depressant power of the drugs as tested by irritation after administration of each. The investigators find that there are two types of intoxication into which clinical cases may be divided. One has a prolonged course and death results from primary respiratory failure; the other has a short course and death results from primary cardiac failure. The first type is reproduced experimentally by subcutaneous injection of cocaine, the second type by intravenous injection. Against this second type of intoxication the depressants, as might be expected, are valueless. The practical conclusions to be drawn from the latter observation are obvious. Although cocaine, procaine and butyn were the only local anesthetics used in this study, the authors remark that the action of other local anesthetics having similar chemical composition is likely to be affected by the depressants in a similar way.

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[1] Corper, H. J., and Uyei, N.: J. Lab. & Clin. Med. **13**: 469 (Feb.) 1928.

[2] Sweany, H. C., and Evanoff, M.: The Value of Culture in the Diagnosis of Tuberculosis, Tubercle **11**: 404 (June) 1930.

[3] Von Húth, T., and Lieberthal, F.: The Culture of Tubercle Bacilli from the Urine: A Report of One Thousand Two Hundred Cultures, Surg. Gynec. Obst. **1**: 985 (June) 1930.

[1] Mayer, Emil The Toxic Effects Following the Use of Local Anesthetics, J A M A. **82**: 877 (March 15) 1924.

[2] Guttman, M R. Acute Cocaine Intoxication Prophylaxis and Treatment with Phenobarbital, J. A. M. A. **90**: 753 (March 10) 1928.

[3] Martin, E. G Local Anesthesia Accidents: Preventive and Emergency Treatment of Toxicity with Especial Reference to Barbituric Acid Derivatives, J A M A. **91**: 555 (Aug 25) 1928.

[4] Knoefel, P K: Herwick, R. P, and Loevenhart, A. S: The Prevention of Acute Intoxication from Local Anesthetics, J. Pharmacol. & Exper. Therap. **39**: 397 (Aug.) 1930.

Association News

WATCH FOR THE COLORED ENVELOP NEXT WEEK

The envelop remittance form for subscription and fellowship dues inserted in The Journal last year proved so popular that *the same type of reminder will again be placed in each copy of* next week's issue of The Journal. This colored slip is, in effect, a statement for the *1931* dues, which are payable in advance. When folded, the slip will form a perfect envelop bearing on its face the return address and the business reply imprint, which makes a *postage stamp unnecessary*. Members and Fellows will find this slip a most convenient method for remitting their 1931 dues.

CONTRIBUTIONS FOR PERSHING HALL

The response to the editorial last week soliciting contributions for the medical salon in Pershing Hall as a memorial for physicians who served and for those who died in the war has been prompt. As The Journal goes to press, the first day's mail brought contributions in the following order:

William H. Woglom, M.D., New York
J. F. Hammond, M.D., Chicago
W. R. Bennett, M.D., San Antonio, Texas
Lewis A Conner, M.D., New York
Milton DeWitt Pollock, M D., Decatur, Ill.
A W. Hornbogen, M.D., Marquette, Mich.
Israel Weinstein, M D., New York
Charles H. May, M.D., New York
James W. Kelly, M.D., Chicago
Robert Lee Hall, M.D., Pocomoke City, Md.
C. W. Lockhart, M.D., Mellen, Wis.
W K. Mittendorf, M.D., New York
I. S. Egan, M.D., Julesburg, Colo.
Olin West, M.D., Chicago
Morris Fishbein, M.D., Chicago
W. F. Wilson, M.D., Lake City, Minn.
W. T. Clark, M.D., Janesville, Wis.
J H. Walsh, M.D., Chicago
James J. Snipes, M.D., Lincoln, Neb.
Frank L. Truitt, M.D., Indianapolis
Edward B. Heckel, M.D., Pittsburgh
P. J. H. Farrell, M.D., Chicago
Scott Gomien, M.D., St. Louis
E. J. Goodwin, M.D., St. Louis
Emil C. Robitshek, M.D., Minneapolis
J. M. Sokol, M.D., Spencer, Iowa
E. Sanborn Smith, M.D., Kirksville, Mo.
A. A. Passer, M.D., Olivia, Minn.

The contributions vary in amount from $1 to $25. The total sum received is $102.50. It is proposed to acknowledge contributions as they come in and it is hoped that various individuals, medical societies and other organizations will make their collective subscriptions promptly so that the total sum needed will soon be realized.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, 10:30 on Thursday, and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 15.	Preventing Death from Cancer.
December 16.	The Cause and the Cure.
December 18.	Preventing Diseases of the Teeth and Gums.
December 20.	A Full Time Health Officer.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

December 15.	Christmas Shopping.
December 16.	Personal Preferences.
December 17.	Why People Get Sick.
December 18.	Sanity in Driving.
December 19.	When You Catch Cold.
December 20.	Too Much Coddling.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

State-Wide Campaign Against Tuberculosis.—The first of the antituberculosis clinics to be held by the state health department in cooperation with the county physicians and the county health department was held, November 3, in Montgomery. This marks the opening of the state-wide campaign against tuberculosis, in which an effort will be made to locate all tuberculous persons and provide needed treatment. The work will be under the direction of Dr. Daniel G. Gill, Montgomery, head of the bureau of communicable diseases of the state health department, assisted by Drs. S. B. McPheeters and Thurston D. Rivers, who will have charge of the clinics. The next clinic will be held in either Lee or Macon County. The purpose of the clinic is diagnostic and the patients are referred for treatment to practicing physicians or to county health officers. In 1929 there were 2,248 deaths in Alabama attributed to this disease, and 1,428 were of Negroes. It is estimated that there are between 20,000 and 25,000 cases in the state at present.

COLORADO

Revocation of License Upheld.—A Colorado district court recently upheld the action of the state board of medical examiners in the revocation of the license of Dr. Clyde Leslie Van Patten. The license was revoked, Oct. 1, 1929, on charges of unprofessional and dishonorable conduct and habitual intemperance in the use of alcoholic drinks. Van Patten was graduated in 1911 from the Hahnemann Medical College and Hospital, Chicago, which is now extinct.

Society News.—The Medical Society of the City and County of Denver was addressed, November 18, by Drs. Nolie Mumey and James Rudolph Jaeger, both of Denver, on "Sarcoma of the Small Intestine" and "Fracture of the Skull," respectively. Dr. M. Weinberg of the Pasteur Institute, Paris, France, addressed the society, November 25, on "Serotherapy of Anaerobic Infection." The society was addressed, December 2, by Drs. William B. Yegge on "Polycythemia"; George B. Kent, "Traumatic Rupture of the Esophagus with Mediastinal Abscess"; Philip Work, "Multiple Fat Emboli"; Frank B. Stephenson, "Traumatic Subperiosteal Hemorrhage in an Infant: X-Ray Study"; Wilfred S. Dennis, "Postpyloric Obstruction of the Stomach with Dilatation." A motion picture was presented on "Traumatic Surgery of the Extremities."

ILLINOIS

Chicago

Society News.—Dr. Gerhardt von Bonin, Leyden, Netherlands, addressed the Medical Research Club of the University of Illinois College of Medicine, November 12, on "The Skulls of the Easter Islanders," and William C. Austin, Ph.D., and Messrs. C. J. Smalley and M. I. Sankstone, on "Changes of *l*-Arabinose and *d*-Xylose Under the Influence of Dilute Alkali."——The Chicago Neurological Society was addressed, November 20, by Dr. Karl A. Menninger, Topeka, Kan., on "Psychoanalytic Aspects of Suicide."——Drs. Herman L. Kretschmer and Norris J. Heckel, among others, addressed the Chicago Urological Society, November 20, on "Atonic Dilatation of the Bladder."——The Chicago Gynecological Society was addressed by Drs. Edward L. Cornell, Leon J. Goodman and Mabel M. Matthies on "Trichomonas Vaginalis: The Incidence and Treatment," and Dr. David S. Hillis, "Diagnosis of Contracted Pelvis by Impression Method"; Dr. Irving F. Stein and Elizabeth J. Cope presented a preliminary study on *Trichomonas vaginalis*.——"Ligation of the Tail of the Pancreas in Juvenile Diabetes" was the subject of Dr. Géza de Takáts before the Chicago Society of Internal Medicine, November 24, and "Variability of Reflex Responses" that of Dr. Stephen W. Ranson; Drs. Philip O. Daly and Solomon Strouse spoke on "The So-Called Medical Complications of Pregnancy."——The Chicago Society of Industrial Medicine and Surgery was addressed, November 5, by Dr. James A. Britton on "Chest Injury and Lung Disease."——Clarence W. Muehlberger, Ph.D., addressed the Chicago Medicolegal Society, November 4, on "The Estimation of Alcoholic Intoxication."——At the fifteenth annual meeting of the board of governors of the Institute of Medicine of Chicago, December 3, the following officers were elected: chairman of the board, Dr. Ludvig Hektoen; president, Dr. Otto L. Schmidt; vice president, Dr. Charles E. Kahlke; secretary, Dr. George H. Coleman, and treasurer, Dr. John Favill. "Personal Experiences as Medical Examiner" was the subject of an illustrated address given by Dr. George Burgess Magrath, Boston; the presidential address was given by Dr. George E. Shambaugh on "The Problem of Deafness."

INDIANA

Society News.—Dr. Edwin Kime, Indianapolis, addressed the Rush County Medical Society, November 10, on "Diathermic and Quartz Light Treatment."——Dr. Leonard G. Rowntree, Rochester, Minn., addressed the St. Joseph County Medical Society, November 19, on "Nerve Operations for Hopeless Cases of Rheumatism."——Dr. James H. Stygall and Dr. Jewett V. Reed addressed the Indianapolis Medical Society, December 9, on "Childhood Lung Conditions" and "Recent Methods of Treatment of Head Injuries," respectively.——The Montgomery County Medical Society was addressed at Crawfordsville, November 20, by Drs. Rollin H. Moser and Alois B. Graham, both of Indianapolis, on "Cardiospasm" and "Anorectal Diseases," respectively.——"Safety Factors in the Technic of Spinal Anesthesia" was the subject of Dr. Floyd T. Romberger, La Fayette, before the Elkhart County Medical Society at Elkhart, November 13; he addressed the Indianapolis Medical Society, December 16, on the same subject.——Drs. Edmund M. Van Buskirk and Abraham J. Sparks, both of Fort Wayne, addressed the Adams County Medical Society, November 14, on "Brain Tumors" and "Genito-Urinary Diagnosis," respectively.

MARYLAND

Society News.—Sir D'Arcy Power, London, England, visiting lecturer, Institute of the History of Medicine of Johns Hopkins University School of Medicine, Baltimore, addressed the Medical and Chirurgical Faculty of the State of Maryland, December 5, on "The Rise of Medical Education in England"; Drs. James F. Mitchell and Oscar B. Hunter, Washington, D. C., spoke on "Progressive Gangrene of the Abdominal Wall."——Physicians who have served the Baltimore City Medical Society as presidents during the first quarter century of its existence will attend the December 19 meeting of the society in a group; "A Consideration of Leprosy in the United States" and "Leprosy in Hawaii" will be the subjects of Drs. William W. Ford and James T. Wayson, Honolulu, Hawaii, respectively.

Lectures on Medical History at Johns Hopkins.—Lectures on various phases of the history of medicine have been announced for the current academic year at the Institute of the History of Medicine of Johns Hopkins University. Dr. Fielding H. Garrison, resident lecturer in the history of medicine and librarian of the Welch Medical Library, is giving a seminar course in medical literature and bibliography, which began October 16 and will continue until Jan. 22, 1931. Beginning March 26, Dr. Garrison will present a series of seven lectures on national medicine, embracing Russian medicine under the old régime and under the Soviet system, and Spanish, Scandinavian, Italian, Germanic and French medicine. These will continue until May 7, 1931. Dr. Stephen d'Irsay, associate in the history of medicine, is scheduled for courses on the history of physiology, the history of universities and ancient and medieval scientific textbooks. Dr. John Rathbone Oliver, associate in the history of medicine, will give an introductory course to the history of medicine for students who wish a survey of the whole field. Dr. William H. Welch, professor of the history of medicine, will give weekly lectures during January, February and March on topics to be announced later. The series of lectures now being presented by Sir D'Arcy Power, honorary librarian of the Royal College of Surgeons, England, announced in The Journal, November 29, is a part of this program.

MASSACHUSETTS

Society News.—The Suffolk District Medical Society was addressed, November 19, by Dr. Samuel N. Vose on "Intravenous Urography in Bladder Neck Obstruction."——Dr. Solomon Strouse, Chicago, addressed the Greater Boston Medical Society, December 2, on "Medical Complications of Pregnancy."——"Diagnosis of Colonic Lesions as Seen by the Fluoroscope and Plates" was the subject of Dr. Laurie B. Morrison, Boston, before the Essex South District Medical Society, December 3.——Dr. Elliott P. Joslin, Boston, delivered the third of a series of monthly lectures before the William Harvey Society of Tufts Medical School, December 12, on "The Carbohydrates in the Body." The second lecture was given by Dr. Howard W. Haggard, New Haven, Conn., November 14, on "Medicine Through the Ages." Dr. George H. Bigelow, Boston, will deliver the fourth lecture, January 9, on "Adult Life."

Appointments at Harvard.—The following appointments, among others, were recently announced for one year from September 1:

Dr. Gordon Douglas Atkinson, assistant in genito-urinary surgery.
Dr. Joseph Seaton Barr, assistant in orthopedic surgery.
Dr. Stewart Hilton Clifford, assistant in pediatrics and child hygiene.
Dr. John Godwin Downing, assistant in dermatology and syphilology.
Dr. Ives Hendrick, assistant in psychiatry.
Dr. Robert Ritchie Linton, assistant in surgery.
Dr. Stephen James Maddock, assistant in surgery.
Dr. Sumner Mead Roberts, assistant in orthopedic surgery.
Hawley Seager Sanford, S.B., assistant in anatomy.
Dr. Harvey Spencer, assistant in pediatrics and child hygiene.
Dr. Jessie Reed Cockrill, research fellow in medicine.
Dr. Norman Easton Freeman, research fellow in physiology.
Dr. John Heysham Gibbon, Jr., research fellow in surgery.
Dr. Robert Allan Phillips, research fellow in physiology.
Dr. Arturo Rosenblueth, research fellow in physiology.
Dr. Oliver Cope, assistant in surgery.

MICHIGAN

Physician Honored.—Dr. George B. McCallum, Monroe, 75 years old, was made an honorary life member of the Michigan State Medical Society at a meeting of the Monroe County Medical Society, November 20. Dr. McCallum was born in Ann Arbor in 1855, was graduated from the University of Michigan in 1880, and after a year of postgraduate study at Columbia University began the practice of medicine at Monroe, according to the Monroe *News*. Dr. James D. Bruce, Ann Arbor, represented the state society in conferring the honor on Dr. McCallum.

Student Health at University of Michigan.—Only 23 per cent of the new students at the University of Michigan were found free from physical defects, it has been announced. More than half were found to have defects that were not serious and the remaining 20 per cent had defects that required speedy attention. During the past year 10,536 dispensary calls were made by the students, as compared with 7,502 the previous year, it is reported; the number of infirmary patients increased from 138 to 157; room calls from 152 to 188, and prescriptions filled mounted from 1,300 to more than 1,500. The appointment of a full time mental hygienist resulted in an increase in mental hygiene conferences from 87 to 696.

Society News.—The fourth annual conference of the heart committee of the Tuberculosis and Health Society of Detroit and Wayne County was held, November 14; the general subject was "The Cardiac Child, Its Problems, Present and Future"; the speakers were Dr. Ray E. Logan, Detroit, "The Cardiac Child at School"; Dr. Robert L. Novy, Detroit, "Developing a Normal Personality"; Marjorie M. Kinney, New York, "How to Use the Clinic, the Social Worker and Nurse," and John J. Lee, Lansing, "Planning for the Future—Vocational Guidance."——Dr. Raphael Isaacs, Ann Arbor, addressed the Kalamazoo Academy of Medicine, November 18, on "The Different Kinds of Anemias."——Dr. Don H. Duffie, Central Lake, addressed the Calhoun County Medical Society, November 4, on "Management of Diabetes."

MINNESOTA

Masseuse Sentenced on Charge of Abortion.—The Minnesota State Board of Medical Examiners reports revocation of the massage license of Olga Stenhoff, December 2. The defendant was convicted, December 3, in the district court of Hennepin County, when she pleaded guilty to the charge of abortion and was sentenced to serve a term not to exceed two years at the Women's State Reformatory at Shakopee, where she is now imprisoned.

Society News.—Drs. A. I. Arneson, Starbuck, and Charles L. Scofield, Benson, addressed the West Central Medical Society, Morris, October 8, on "Blood Chemistry" and "The Relation of Physicians to the State Board of Health," respectively.——"Gastro-Intestinal Diseases of Children" was the subject of Dr. Roger L. Kennedy, Mayo Clinic, Rochester, before a recent meeting of the Houston-Fillmore County Medical Society at Harmony——Dr. Myron O. Henry, Minneapolis, addressed the Scott-Carver County Medical Society, October 14, at Belle Plaine on fractures, and presented motion pictures of Boehler's method of treating fractures.——The Washington County Medical Society was addressed in October by Dr. Owen H. Wangensteen, Minneapolis, on "Cancer of the Stomach."——Dr. Samuel H. Boyer, Duluth, among others, addressed the Red River Valley Medical Society, October 9, at Warren, on "Some Phases of Organized Medicine."——Dr. Rood Taylor, Minneapolis, opened the second clinical course of the Lyon-Lincoln County Medical Society at Marshall, October 1, with a discussion of pediatrics.——At the regular meeting of the Minnesota Academy of Medicine at Minneapolis, December 10, Dr. James A. Johnson spoke on "Acute Mechanical Obstruction of the Lower Bowel," and Dr. Frank E. Burch, St. Paul, on "Operative Treatment of Squint by the Tucking Method."

MISSISSIPPI

Society News.—Papers were delivered before the Issaquena-Sharkey-Warren Counties Medical Society, November 11, by Drs. R. H. Foster, Anguilla, on "Psychiatry for the General Practitioner"; George M. Street, Vicksburg, "Cholecystitis," and Guy C. Jarratt, Vicksburg, "Some Emergencies of the New-Born."——A joint meeting of the Fifth District Medical Society of Louisiana and the Issaquena-Sharkey-Warren Counties Medical Society was addressed at Vicksburg, December 9, by Drs. William W. Butterworth, New Orleans, on the occurrence of syphilitic nephritis in infancy and childhood; Virgil S. Counseller, Rochester, Minn., "Anatomy and Surgical Treatment of Undescended Testicle," and James G. Carr, Jr., Chicago, "Cardiac Pain: Characteristics and Significance."——"Our Obligation to Organized Medicine" was the subject of Dr. Charles W. Patterson, Rosedale, in an address before the Clarksdale and Six Counties Medical Society, November 5, at Clarksdale, and "Treatment of Normal Breech Presentation" that of Dr. Dolph V. Galloway.

NEW JERSEY

Society News.—The forty-seventh annual meeting of the Cape May County Medical Society was addressed, November 6, by Dr. James T. Rugh, Philadelphia, on "Focal Infections and Their Interest to the General Practitioner."

Miscellaneous Stores Sell Medicines.—More than 400 meat, grocery, confectionery, cigar and other retail stores in four southern counties in New Jersey were found to be selling medicines and druggists' supplies so far below standard quality as to be a menace to public health, investigation by the New Jersey Board of Pharmacy has revealed. Many of the dealers questioned are said to have told the investigators that salesmen for wholesale or manufacturing houses had urged them to carry druggists' supplies and had informed them that sale of the products was legal. The pharmacy board will probably introduce bills into the next session of the state legislature whereby manufacturers would be made liable if their customers are not registered pharmacists, according to a statement reported in the New York *Times.*

NEW YORK

Sanatorium for Variety Artists.—A new sanatorium at Saranac Lake, backed by the entire vaudeville and motion picture industries, to be known as the National Variety Artists' Sanatorium, was formally opened to the medical profession of the surrounding area, November 20. Dr. Edgar Mayer is medical superintendent.

Fifty Million Dollars for State Institutions.—A bond issue of $50,000,000 for new construction at state hospitals for the insane, schools for mental defectives and epileptics, state prisons and reformatories was approved by a vote of 6 to 1 at the November election. In New York City the vote was 14 to 1. Elihu Root was honorary chairman, and Cornelius N. Bliss chairman of the campaign.

New York City

Blood Transfusion Service.—The Donor Bureau, sponsored by the New York Academy of Medicine, now has a twenty-four hour service with an average of more than 300 calls a month. The bureau is serviced by about seventy hospitals as well as many physicians, and it has a list of 800 donors, each one carefully classified as to group and none of them professional. The donor must be subject to call day or night and must undergo a rigid physical examination at the time of registration and again before each transfusion. Many soldiers at Fort Hamilton are listed and make excellent donors on account of selection and careful physical supervision. In addition to supplying qualified donors for transfusion, the organization supplies serums for blood grouping and performs blood grouping on request. The blood transfusion service has undergone several changes in organization since it was started in 1927. Since the Donor Bureau has been sponsored by the academy of medicine, its service has steadily increased from about 125 calls a month to more than 300.

Conference on Sight Conservation.—During a recent conference of the National Society for the Prevention of Blindness, held jointly with the National Organization for Public Health Nursing, special discussions were made on the conservation of vision in school children. It was reported that 1,000 school children in New York City had seriously defective vision and had failed to receive the attention their handicap requires. Request for nineteen additional sight-saving classes had been made, but the board of education had been unable to meet this request on the ground of retrenchment, creating in the waiting list of 1,000 pupils a feeling of inferiority. There are now seventy-nine sight-saving classes in New York City, accommodating 1,450 pupils, many of them in the elementary grades. There is urgent need for twenty-one additional classes in the elementary grades, and for twenty-nine classes in the junior and senior high schools. Dr. Jules L. Blumenthal, director of the city bureau of child hygiene, said the health department in its eleven clinics had examined 16,256 children in 1929, and 10,905 prescriptions for glasses had been written.

OHIO

Hourly Nursing Service in Columbus.—Hourly nursing service at a rate of $2 for the first hour and 75 cents for each additional hour was recently instituted at Columbus through the official nurses' registry. The registry has also a special fee for obstetric cases when a nurse's care is desired in the home only during delivery and for a short time afterward.

Physician Honored.—Dr. Joseph Henry Todd, Wooster, was tendered a banquet, November 11, by members of the Wayne County Medical Society. Dr. Todd, who is 94 years of age, was presented with a certificate making him a life member of the society. Dr. Robert C. Paul, Wooster, secretary of the society, was toastmaster, and the speakers included Judge Hiram B. Swartz and Drs. Lincoln A. Yocum and John G. Wishard.

Society News.—Dr. John O. Polak, Brooklyn, N. Y., addressed the Columbus Academy of Medicine, November 17, on "Relative Value of Surgery and Irradiation in Cancer of the Uterus"; this was the annual D. Tod Gilliam memorial lecture.——The Maumee County Medical Society was addressed, November 11, by Drs. Floyd P. Allen, Cincinnati, and Clarence S. Ordway, Toledo, on "Traumatic Injury and Treatment to the Perineal Region" and "Traumatic Surgery," respectively.——Dr. William De W. Andrus, Cincinnati, addressed the Butler County Medical Society, November 12, on "Metabolic Rate Aspects of Thyroid Disease," and Dr. Mont R. Reid, Cincinnati, on "Medical and Surgical Treatment of the Thyroid."——The Warren County Medical Society acted as host to physicians in Highland, Fayette, Clinton and Green counties, November 12; papers were delivered by Drs. Alonzo B. Brower, Dayton, on "Classification and Later Day Treatment of the Anemias," and Harry R. Huston, Dayton, "Blood Typing and Transfusions," and Elmer R. Arn, Dayton, "Surgical Indications in Anemia."

PENNSYLVANIA

Society News.—Dr. Damon B. Pfeiffer, Philadelphia, addressed the Erie County Medical Society, November 4, on "Facts and Fancies Concerning Carcinoma of the Colon."——The fifteenth Mellon Lecture was delivered in Pittsburgh by Dr. Torald H. Sollmann, professor of pharmacology and materia medica and dean of the Medical School of Western Reserve University, December 5, on "Clinical Excretion of Mercury." This lecture is sponsored by the Biological Society for Research of the University of Pittsburgh.

Philadelphia

Research Clinic for Tumors.—A research clinic for the study of tumors is to be inaugurated, January 1, at the Jewish Hospital under the direction of Dr. Leon Solis Cohen. The clinic, which is said to be financed by an anonymous friend of the hospital, will include departments of radiology, clinical research, experimental research and education, and a dispensary for the reception and care of patients. Prominent among its activities will be an educational project to encourage early diagnosis and to urge sufferers to submit to early operation if it is advised by competent surgeons. Dr. Nathan Blumberg will supervise the department of clinical research and Dr. Benjamin Gruskin, the department of experimental research. Dr. Cohen will take charge of the department of radiology.

Society News.—Dr. Roy B. Henline, New York, addressed the Philadelphia Urological Society, November 24, on "Paravertebral Anesthesia."——A symposium on industrial medicine was conducted before the Philadelphia County Medical Society, December 10; Dr. John J. Moorhead, New York, spoke on "Practice of Traumatic Surgery"; Drs. William Bates, Eldridge L. Eliason and George Morris Piersol took part in the discussion.——The Philadelphia Academy of Surgery was addressed, December 1, by Drs. Benjamin Lipshutz and George M. Dorrance on "Carbuncle of the Kidney" and "Cecal Drainage in Acute Suppurative Appendicitis," respectively.——Dr. Joseph C. Birdsall addressed the Philadelphia Medical Examiners' Association, December 1, on "Significance of Pus in the Urine."——The Obstetrical Society of Philadelphia was addressed, December 4, by Dr. Arthur H. Curtis, Chicago, on "Surgical Correction of Pelvic Lesions Incident to Childbirth."

SOUTH DAKOTA

J. E. Doran Fined.—A fine of $500 and payment of a license fee of $1,000 by John E. Doran of Minneapolis at Watertown recently followed Doran's plea of guilty to the charge of practicing medicine as an itinerant physician without having procured the special license required, according to a report of the state board of health. Doran's record in the files of the Bureau of Investigation of the American Medical Association is an unsavory one. In 1911, he is reported to have been arrested at Milbank, S. D., charged with practicing medicine without an itinerant license. A month later, it was reported that he was arrested in Grand Forks, N. D., and fined $50 for violation of the medical practice act of that state. In July, 1924, Doran's Colorado license is said to have been revoked after he had been found guilty of unprofessional and dishonorable conduct. Although Doran appealed the decision, the district court upheld the action of the state board. Doran appears to have associated with him other men of the same stripe and has operated under such names as "Progressive Doctors Specialists," "Associated Doctors" and "United Doctors."

TENNESSEE

Society News.—The seventy-second semiannual meeting of the Middle Tennessee Medical Association was addressed at Lawrenceburg, November 6-7, among others by Drs. John M. Lee, Nashville, on "Throat Infections in Infants and Children"; Paul G. Morrissey, Nashville, "Treatment of Gonorrheal Endocervicitis by Electrocoagulation"; Thomas J. Stockard, Lawrenceburg, "Differential Diagnosis of Thoracic Aneurysm and Mediastinal Tumors," and James C. Kelton, Murfreesboro, "Puerperal Septicemia of One Hundred Years Ago and Now, with Treatment." Dr. John H. Tilley, Lawrenceburg, was elected president of the association, succeeding Dr. Murray B. Davis, Nashville.

WASHINGTON

Society News.—The Spokane County Medical Society was addressed, October 9, by Drs. Alphonso N. Codd on "Obstructive Laryngeal Dyspnea"; M. M. Kalez, "Technic and Indications for Avertin Anesthesia," and John T. Bird, "Coronary Thrombosis."——"Cleft Lip and Palate" was the subject of an illustrated address by Dr. Herbert E. Coe, Seattle, before the Walla Walla Valley Medical Society, October 9, and "The Crippled Child" that of Dr. Alfred O. Adams, Spokane; Dr. Clyde W. Countryman, Spokane, reported a malignant tumor involving the heart and liver.

GENERAL

Medical Bills in Congress.—Representative Patman, Texas, was authorized by the House of Representatives, December 2, to file a minority report on H. R. 7884, a bill now pending in the House, with a favorable committee report, proposing to prohibit experiments on living dogs in the District of Columbia. S. 255, a bill for the promotion of the health and welfare of mothers and infants, was reached on the Senate calendar, December 3, but its consideration was prevented by objections by Senator Bingham, Connecticut, and Senator Phipps, Colorado. December 4, the Senate, on motion of Senator Jones, Washington, voted to proceed with the consideration of S. 255 and thereby made it the unfinished business of the Senate. H. R. 14059, introduced by Representative Rogers, Massachusetts, proposes to authorize an appropriation of $52,000,000 to provide additional hospital, domiciliary and outpatient dispensary facilities for persons entitled to hospitalization under the World War Veterans' Act.

Another Poses as Physician's Son.—During the week of October 25, Mr. S. Prentiss Baldwin, Cleveland, received a telephone call from a young man who reported an automobile accident in Lorain, Ohio. He said that he was the son of Dr. Frederick L. Hayes, Brookline, Mass., a Dartmouth classmate of Mr. Baldwin, that he was studying medicine in Minneapolis, and that a justice of the peace in Lorain had taken his money as a guarantee of his future appearance in connection with the accident. Mr. Baldwin gave him money for transportation from Cleveland to Boston. Investigation later proved that the story was false, and the chief of police of Lorain informed Dr. Hayes that no such accident took place there. This swindle is similar to that perpetrated at the expense of Dr. William Gerry Morgan, Washington, D. C., reported in The Journal, November 8. As Dr. Morgan was a classmate of Dr. Hayes and Mr. Baldwin at Dartmouth, it is believed that this is the same impostor and that he is working from a Dartmouth alumni catalogue.

Infant Mortality Decreased in 1929.—The U. S. Department of Commerce recently reported that the infant mortality rate showed a marked decrease as compared with 1915. The rate (68) was the second lowest since the establishment of the birth registration area in 1915. At that time this area was composed of ten states and the District of Columbia and included 31.1 per cent of the population of continental United States, while in 1929 there were forty-six states and the District of Columbia in this area, and 94.7 per cent of the total population of continental United States. For the sixth consecutive year, Oregon leads the states with the lowest infant mortality rate (48). In 1929, eleven states had lower rates than at any time since their admission to the registration area. These were: Minnesota, 51; Arkansas, 58; New Jersey, 60; Illinois, 61; Massachusetts, 62; Florida, 65; Michigan, 66; New Hampshire, 68; Louisiana, 74; Georgia, 76, and South Carolina, 91. Two states, Iowa and Maryland, in 1928 attained their lowest rates, which did not change in 1929. Taking the rate for the registration area of continental United States as a basis, twenty-four states had lower rates in 1929 and twenty-one had higher rates, while New Hampshire's rate was identical. With the exceptions of Colorado, Maine and Wyoming, the high infant mortality rates in these twenty-one states were due to the great infant mortality among Negro populations, especially in rural districts. The birth rate for the year 1929 was 18.9, the lowest for any year since the establishment of the birth registration area. Oregon had the lowest rate (14.1) of any state in the registration area.

Society News.—At the third annual meeting of the Central Society for Clinical Research in Chicago, November 21, Dr. Louis Leiter, Chicago, was elected president for the ensuing year, and Dr. Lawrence D. Thompson, St. Louis, secretary. The program included papers by Drs. William J. Dieckmann, St. Louis, "Focal Necrosis of the Liver"; Elmer L. Sevringhaus, Madison, Wis., "Study of Five Hundred Diabetic Patients"; John H. Foulger and Johnson McGuire, Cincinnati, "Intravenous Administration of Barium Chloride in Humans," and Isadore Pilot, Chicago, "Sporadic Septic Sore Throat Due to Streptococcus Epidemicus."——At the recent meeting of the American Association of School Physicians at Fort Worth, Texas, Dr. Sven R. Lokrantz, medical director of the Los Angeles city schools, was elected president; Dr. William A. Howe, Albany, was reelected secretary.——At the annual meeting of the American Public Health Association, October 30, Dr. Hugh S. Cumming, Washington, D. C., was installed as president, Dr. William C. Hassler, San Francisco, made president-elect, and Mr. Homer N. Calver, New York, reelected secretary. The next annual meeting will be held in Montreal, Quebec, September 14-17.——Dr. Alfred S. Giordano, South Bend, Ind., has been appointed, with others, a member of the advisory editorial board of the new *American Journal of Clinical Pathology*, to be published by the American Society of Clinical Pathologists. His name was inadvertently omitted from the list of members published in The Journal, November 1.——At the thirty-eighth annual meeting of the Association of Military Surgeons of the United States in September, Capt. James C. Pryor, medical corps, U. S. Navy, was elected president; Col. Charles R. Reynolds, medical corps, U. S. Army; Col. Charles W. Comfort, Jr., medical corps, Connecticut National Guard; Comdr. William S. Bainbridge, U. S. Naval Reserve, and Asst. Surg. Gen. Ralph C. Williams, U. S. Public Health Service, vice presidents, and Brig.-Gen. Jefferson R. Kean, U. S. Army, retired, secretary, reelected.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 22, 1930.

Medicine and the State: Chief Health Officer's Apologia for Medical Socialism

At a public health conference held in London, Sir Arthur Newsholme, late principal medical officer of the local government board—now the ministry of health, gave an address on medicine and the state. He said that the public was constantly being reminded of the excessive expenditure on the social services, but on the medical side not a single service could be stopped without national injury. What was needed was critical examination of the extravagant and wasteful expenditure on these services. There were vices of incoordination, overlapping, hiatus. The defects of the national health insurance act were the absence of consultative, including pathologic, services, failure to provide hospital treatment, and the exclusion of the wife and dependents. He could not avoid "the burning question" of medical certification, which had involved the moral degradation of individual physicians who had certified without thorough examination and without realizing their responsibility not to certify merely to please the patient. Such cases, he was confident, were exceptional, but borderline cases were numerous and in such the physician gave his patient the benefit of the doubt. His wish to retain his patient, who could leave him, had some weight. How could this sinister association of medicine and money be avoided, or, if inevitable, how could the weakness of a physician desirous of pleasing his patient, and the unscrupulous or unthinking desire of the patient to have a rest from work, even when not incapacitated, be counteracted? Some common incapacitating conditions had no objective signs. So-called chronic rheumatism was a common source of overcertification. Neither physician nor patient might in this case be to blame. How could the stream of excessive claims be checked? The former lodge mental attitude in which pride was taken in not "going on the club" had disappeared. The democratic management of each society had almost ceased and more than 60 per cent of the insured belonged to centralized societies, in the working of which they could take practically no part. He advocated giving a graduated bonus to every one reaching 65 whose sickness claims had been below the average. There was much to be said for making the patient pay a portion of the charge for the drugs prescribed. Often the drugs were unnecessary and had been ordered to satisfy the patient. He doubted whether an effective remedy was possible for overcertification unless the insurance societies were regionalized and placed under local management.

These admissions of a man who until recently was the chief health officer of the country, and chief administrator and supervisor of the medical working of the insurance act, are noteworthy. A supporter of the medical socialism of the act, he endeavors to defend it but has to admit that the two great evils of overcertification of illness and overprescribing of drugs are unavoidable. The old lodge system, with which his comparison is so disparaging, could check malingering simply because it was not socialistic. The members felt their responsibility not to make unnecessary claims on their own funds or enforced this on one another when necessary. Now the funds come mainly from the state or the employer and are regarded as a cow to be milked.

Readmission of Women Students to a London Hospital

During the war the scarcity of men students led to the admission of women to London medical schools, which had always been restricted to men. In 1928 an opposite movement occurred and women were again excluded from these schools. The reasons given were that the men students objected and that teachers had complained of difficulty in teaching certain subjects to mixed classes. For some unknown reason, similar difficulties with regard to women students never arose in the provincial medical schools. The *British Medical Journal* has recently stated in its educational number that the ban on women in the London medical schools can be only temporary. This view has quickly been confirmed. King's College Hospital has decided to readmit women students in limited numbers. The authorities state that the exclusion in 1928 was simply a protective measure, because it was feared that the closing of other hospitals to women might result in an undue invasion of King's College Hospital and that therefore the step was only temporary and experimental. The objections to coeducation urged in other hospitals, such as embarrassment in the teaching of certain subjects to mixed classes or distraction of men students, have not been experienced at King's College. The only other London hospital where coeducation now goes on is University College, which admits not more than twelve women students annually, so that about forty women are studying there at one time. There is also the Royal Free Hospital (London School of Medicine for Women), which admits only women students. Some of the great London schools, such as Guy's and St. Bartholomew's hospitals, have never admitted women students at any time.

The Physician Who Described Acromegaly in Himself

An account has been given of Dr. Leonard Portal Mark (The Journal, October 11, p. 1109), the physician who recently died after living—it is noteworthy—a vigorous life to the age of 75, though suffering from acromegaly for more than thirty years, and turning his misfortune to account by minutely describing the course of the disease in himself. In Dr. Mark's book and in his case, Dr. Harvey Cushing, when visiting London for the International Medical Congress in 1913, took a great interest. Dr. Mark desired that when he died a necropsy should be made at his medical school, St. Bartholomew's Hospital, in order that further light might be thrown on the pathology of the disease. This has been done by Dr. E. R. Cullinan. The changes of acromegaly were found to a moderate degree. The vault of the skull was enlarged (25 inches in circumference) and the inner and outer tables were greatly thickened (in parts 1 inch). The pituitary fossa was somewhat enlarged and its posterior wall softened. The mandible was larger and thicker than normal. The radius and ulna were enlarged and the hands typically acromegalic. The pituitary was slightly larger than normal and of soft consistency. The thyroid was enlarged. Advanced atheroma (with thrombosis of the common iliac and right popliteal arteries) and chronic interstitial nephritis of the arteriosclerotic type were also found. So much for the gross changes. A detailed study is to be made of certain valuable material, which has been retained, at Dr. Mark's own request.

The Danger of Medicine Producing Racial Degeneration

At the annual dinner of the Royal Society of Medicine, Dr. Barnes, F.R.S., Bishop of Birmingham, who is an eminent mathematician and has been described as a liaison officer between science and religion, discussed the possible dysgenic effect of medicine in producing racial degeneration. There might come a time when biochemistry would enable medicine to give an immunity to ill health such as had been enjoyed only by exceptional individuals in the past. In the modern world, in spite of political, social and moral disorder, it was good to be alive. Never since the golden age of Greece had mental energy been more fertile. But what probability was there that the present great era of scientific progress would come to an end—that the Dark Ages would again come over Europe? Medical skill and public hygiene would ultimately be disastrous if they preserved inheritable mental or physical defects. It was now known that dysgenic mutations could occur alike in plants and in animals, as it were spontaneously. Having appeared, they could be inherited and, unless eliminated by a hostile environment, they remained a permanent menace. Now medical science destroyed the power of hostile environment but left inheritable characters untouched. Mental defect was a dysgenic mutation which was a grave menace to social welfare. Mental defectives already numbered nearly 1 per cent of the community, and the families in which the defect was latent made up inferior racial stocks amounting to some 10 per cent of the community. What would happen to humanity during the relatively inexhaustible future? Would medicine conquer disease and would our descendants, perfect in body and more powerful in brain, create Utopia? Or would the age of the mammals, which had endured for some 60 million years, pass away? The great reptiles had vanished. If man passed from this globe, would some new form of life, higher in the evolutionary scale, in due course lord it over the earth? He could ask such question without anxiety and receive any answer without dismay, for he was certain that man's permanent habitation was not on the earth and that his spiritual achievements were imperishable.

Invention to Prevent Loss of Life in Automobile Accidents

A device which, it is claimed, will prevent deaths from automobile accidents, has been tried out by the Institute of Patentees. It consists of a grooved roller, about 6 inches in diameter, attached to the front of automobiles. Its action prevents a person knocked down from being crushed under the wheels. The roller revolves in a direction opposite to that of the wheels of the car and pushes any obstruction on the road, such as the body of a man, along with it. The invention is the work of a London physician, Dr. Vernon Clifford. Hospital experience showed him that knocking people down and breaking bones did not kill them, but that the great loss of life was due to crushing beneath the wheels of the car. He made experiments by attaching the wheel of a lawn mower to the front wheel hub of a bicycle and getting the mower wheel to revolve in the opposite direction to that of the bicycle wheel. He rode it round the lawn, pushing a cigaret case and tobacco pouch and pipe in front of it, and found that he could not run over them. He then made a toy model with which he tried to run over dolls on a table. For the final test the attachment was fixed to a heavy commercial lorry and at a low speed a man was rolled along the ground for a distance of 20 feet. He was not injured. A dummy was then thrown in front of the vehicle while traveling at from 15 to 18 miles an hour. It was simply rolled along in front of the lorry. Under mass production Dr. Clifford estimates that the attachment would cost $50 and that its general use would save 4,000 lives annually in this country.

Doubly Injured by Automobiles

A shocking double injury by automobiles in southeast London shows the terrible danger now of our streets. An inquest was held on a schoolmistress, aged 42, who was run down by a motorcycle and while lying on the ground and being treated for injuries was again run into by an automobile. She was removed to a hospital, where she died. The result was that a captain of artillery, who had been arrested on a charge of being drunk while in charge of an automobile, was further charged with manslaughter.

The Most Complete Dental Clinic for Children

At the opening of the new Eastman Dental Clinic of the Royal Free Hospital, erected, equipped and endorsed by Mr. George Eastman of Rochester, N. Y., General Dawes, American ambassador, described it as the most complete and most modern children's dental clinic yet erected. Mr. Eastman had long been interested in the dental treatment of the coming generation and had selected London as an ideal place for another demonstration of the value of preventive treatment. He was establishing another in Rome and still another in Stockholm. There was also every possibility that one would be established in Paris. Dr. Burkhart, who is in charge of the Eastman clinic at Rochester, N. Y., also took part in the proceedings.

PARIS

(From Our Regular Correspondent)

Nov. 12, 1930.

The Thirtieth Congress of Urology

The thirtieth annual session of the Société d'urologie has just closed. It was presided over by Dr. Chevassu, surgeon to the Hôpitaux de Paris and agrégé professor at the Faculty of Medicine. It was attended by a large number of urologists, a considerable proportion of whom were foreigners. Prof. Maurice Gérard of Lille, who presented a paper on "Contusions of the Kidney and Their Remote Results," gave a good clinical description of the condition and expounded various theories advanced to explain the mechanism of renal contusion (compression exerted by the vertebrae, hydraulic pressure of the kidney fluids, traction exerted by the pedicle) but did not give his personal approval to any one of them. The immediate prognosis is often favorable, but the remote results are uncertain, as partial or total atrophy of the organ may ensue, owing to retraction of the cicatrix. In the majority of cases, however, the cure may be complete, and the functioning of the kidney may become entirely normal. The newest feature of the paper was the study on the judicial aspects of the condition and the percentage of compensation claimable in contusions resulting from an accident. The decision will be based on the functional value of the injured kidney. If nephrectomy has to be performed, the proportion of disablement should be placed at 50 per cent. In the discussion that followed, Professor Legueu held that traumatic nephritis does not exist but that it sometimes becomes necessary to combat traumatic hydronephrosis, which is a genuine entity of mechanical origin. Mr. Lepoutre of Lille spoke on tardy ecchymoses, the sign of unrecognized hematomas, complications caused by a previously existing hydronephrosis and by the lithiasis that may appear tardily. Mr. Duvergey of Bordeaux referred to the danger of later infection in a contused kidney, chiefly by *Bacillus coli.* Mr. Pasteau spoke on traumatic hydronephrosis. Among the nonofficial communications read by their authors were: "Peculiarities of Epidural Anesthesia," Dr. Phélip; "Result of Phenolization of the Cord (Doppler Operation) in the Impotent"; "Prostatitis of Dental Origin," Dr. Duvergey; "Vaccinotherapy in Renal Tuberculosis," Dr. Gayet of Lyons. Several speakers emphasized the dangers of cystostomy at the first onset, by reason of the too sudden changes brought about in the excretory functions of the kidney. Mr. Chauvin of Marseilles has found that all danger can be eliminated by applying a ureteral retention sound several days before performing the cystostomy. Examination by the use of intravenous injections of sodium 2-oxo-5-iodo-pyridine-N-acetate was the subject of communications presented by Chevassu of Paris, Blanchet of Bordeaux, Lepoutre of Lille, Boeckel of Strasbourg, Bonnet of Nice, Perrier, Pasteau and others, all of whom declared that they were well satisfied with the method. Mr. Teposu of Bucharest reported, however, a case in which an attack of tetany was brought on that lasted ten minutes. M. R. Darget of Bordeaux employed pyelography to advantage by the insufflation of air into the pelvis. Renal tuberculosis and vaccine treatment were discussed in several communications.

The general assembly of the Association d'urologie, which convened after the congress, awarded, for the first time, the prize of the association amounting to 20,000 francs ($800), the recipient being Dr. Chabanier, for many years head of the laboratory at the Hôpital Necker in Paris. This prize is made up by gifts from 184 foreign members in fourteen different countries. The Tuesch prize (7,500 francs, or $300), established by a grateful patient treated by Dr. Chevassu and destined for a young French investigator under 30 years of age to encourage him in his work, was awarded to Dr. Jacques Delarue, although he is not a urologist but is carrying on anatomopathologic studies on the tuberculous focus.

The French Congress of Orthopedics

The twelfth French Congress of Orthopedics met recently under the chairmanship of Agrégé Professor Albert Mouchet. The two main topics on the program were: (1) Coxa Vara in Adolescence, with a paper by Mr. Georges Huc of Paris, and (2) Obstetric Paralysis of the Upper Limb, presented by Mr. André Rendu of Lyons. Huc, who ascribed to coxa vara multiple and diverse origins, recommended as treatment prolonged extension in abduction and inner rotation, or the application of the Whitman apparatus at an early stage, followed later by a subtrochanteric osteotomy, with the use of a plaster cast for two months. Forced adjustment or refracture gives only bad results and is almost certain to lead to arthritis. This paper was subjected to criticism, notably by Albert Mouchet and Roederer. They preferred the Whitman apparatus to prolonged extension and advised immobilization in a plaster cast for a much longer period. In the opinion of many speakers, the prognosis of coxa vara remains grave, and simultaneous treatment of the general condition is important. In discussing the second topic, Rendu gave a complete survey of paralysis of the arm of obstetric origin in the new-born, which usually finds its explanation in undue traction applied to the brachial plexus. He advises first massage; then the application of an apparatus that will maintain the arm in abduction at 90 degrees and in inner rotation. He reviewed the various treatments proposed and pointed out the good effects of osteotomy applied to the humerus in order to adjust the axis of the limb. Dr. Mencière of Reims, who was present at the session, claimed priority for this operation, which he began to use in 1902. Mouchet emphasized the good results that the operation produces.

Epidemic in Marseilles Due to Ticks

A peculiar epidemic appeared in Marseilles, two years ago, and has been again reported at present. It was an unknown disease resembling exanthematic typhus but yet frankly different from that and, moreover, mild in its course. The researches made to elucidate the question remained fruitless, and the Academy of Medicine when consulted was unable to find a plausible explanation. Mr. Brumpt, professor at the Faculté de médecine in Paris, has recently found the solution of the enigma, and has explained his views in a communication addressed to the Academy of Sciences. He diagnoses the malady as the *fièvre boutonneuse* of Africa, transported to Marseilles, which is in constant relations with the ports of northern Africa, by ticks. Brumpt has succeeded in transmitting the Marseilles exanthematous fever to man through the intermediation of adult ticks obtained in the form of nymphs from dogs in Marseilles. The experiment, which proves the great resistance of the virus in these animals, shows also the identity of the *fièvre boutonneuse* of Africa and the exanthematous fever of Marseilles. The author recommends, as prophylaxis, bathing of the dogs in an arsenical solution and the encouragement in Marseilles of a small insect of the *Ixodiphagus* genus, which is a great destroyer of ticks.

Celebration in Memory of Professor Laveran

The memory of Professor Laveran, who discovered the hematozoon of malaria, and to whom a monument was unveiled last spring at Constantine during the ceremonies commemorating the centenary of the conquest of Algeria, has again been honored at Paris by commemorative ceremonies held at the military hospital of the Ecole du Val-de-Grâce, where he was professor until he reached the army age for retirement, after which he was director of a laboratory at the Institut Pasteur until his death. The ceremonies were held in the Great Hall of the school. Dr. Roux, director of the Institut Pasteur, presided. Professor Sieur, president of the alumni association of the Ecole de santé militaire du Val-de-Grâce, expressed the thanks of the association to those who had subscribed to the monument. Mr. Calmette gave an account of the life of Laveran and of his discovery. Addresses were delivered by Troussaint, a former co-worker of Laveran; by Marchoux, and by Rouvillois, the director of the school. An historical niche was established in the school, in which a glass case encloses the microscope and the observation records of Laveran. Then the audience proceeded to a spot in front of the entrance to the school, which will bear henceforth the name of "Place du docteur Laveran." A commemorative tablet was affixed to the house in which Laveran lived.

The League for Combating Venereal Disease

The *Ligue nationale française contre le péril vénérien* was established in May, 1923, after the session of the international congress of social hygiene and prophylactic education. The two presidents thus far have been Dr. Jeanselme and Dr. Queyrat. Its administrative council is composed of eminent representatives of the faculties of medicine, the faculties of military medicine, and of the Catholic, Protestant and Jewish churches. The league is functioning with great energy. Its activities take the form of lectures, theatrical plays, lantern slides, motion pictures, tracts and posters. Its publicity campaign is directed chiefly toward the teachers, in the hope that they will properly train the educators of the future. In 1928, 200 lectures were held, which were attended by 150,000 persons, 20,000 of whom were future educators. More than 100 films have been projected in 600 motion picture houses, before two million spectators. Small manuals have been prepared, in an ingenious manner, by the teachers of science and literature. Three significant and well executed posters have been distributed throughout France. A large number of special dispensaries have been opened. A special form of publicity has been carried out in the public urinals and comfort stations, a complete list of the public dispensaries being posted, accompanied by a few words of advice and instruction. A serologic institute has been created in Paris. At present it is located at the Faculté de médecine, but a special building to house it is being erected. The league was financed at first by private subscriptions. Then, gradually, government aid was given. The minister of public health makes the league an annual grant of 250,000 francs. At present, its annual resources amount to 1,500,000 francs ($60,000). It is far from possessing the financial resources of the prophylactic institute of Brazil, to which the Gaffrée-Guinle Foundation has given 90,000,000 francs ($3,600,000).

BUENOS AIRES

(From Our Regular Correspondent)

Sept. 30, 1930.

The Hypophysis and Diabetes

Dr. B. A. Houssay lectured recently at Montevideo, Uruguay, on the hypophysis and diabetes. He discussed his studies on experimental diabetes made in collaboration with Dr. Biasotti. While pancreatic diabetes in dogs is not modified by the removal either of the thyroid gland or of the medulla of the suprarenals, it is attenuated in intensity and its evolution is prolonged by removal of the hypophysis. Glycosuria and even diabetes is frequently associated with acromegaly. The association of diabetes with a thalamencephalic lesion is rare. Animals deprived of the hypophysis are very sensitive to the action of insulin. Dogs deprived of both the hypophysis and the pancreas may survive with a glycemia even during six months. In dogs with a lesion deeply localized in the tuber cinereum, diabetes has an evolution of the same intensity as that observed in control dogs deprived of the pancreas alone. These facts suggest that the hypophysis is an important factor in carbohydrate metabolism. It has been proved that the anterior lobe of the hypophysis has an action on the maturation and luteinization of ovarian follicles, on the acceleration of growth, on the thyroid gland, and on the cortex of the suprarenals. As a plausible hypothesis it is believed that acromegalic diabetes may be due to a hyperfunctioning of the anterior lobe of the hypophysis.

Congress of Surgery

The second National Congress of Surgery was held at Buenos Aires, Argentina, with Dr. E. Belaustegui as president. The official speakers were Drs. R. Solé, who spoke on surgery in gastric ulcer; P. Chutro, on postoperative complications of appendicitis; R. Pasman and A. Rodríguez Egaña, present status of the surgical treatment of Pott's disease, and J. C. Ahumada and A. Caviglia, surgical treatment of cancer of the breast. The congress was a success. There were operative demonstrations in the mornings, and expositions of national products and instruments made in Argentina and also film projections, in the afternoons.

New Government Hospitals

The national government of Argentina finished the construction of hospitals at Añatuya and Frías, as well as several small branches or first aid posts at Ojo de Agua and Fernández, in the province of Santiago del Estero. Both the hospitals and the first aid posts are complete and well constructed. In the province of Santiago del Estero, trachoma and malaria have spread extensively.

Foreign Guests in Argentina

Drs. T. Martins and Barros Barreto, both of Rio de Janeiro, delivered lectures at Buenos Aires on the testicular hormone and the prophylaxis of yellow fever, respectively.

Prof. E. Leschke of Berlin lectured before the Asociación Médica Argentina on clinical and physiologic aspects of the sympathetic nervous system.

Prof. G. Marinesco of Bucharest delivered several lectures on neurology at Buenos Aires, Rosario and Córdoba, and gave laboratory demonstrations.

Scholarships for Graduate Work

The National University of Buenos Aires established scholarships for graduate work in several branches of science, eight of which have been given to Argentine physicians. The Rockefeller Foundation gave a scholarship for studies of physiology in Cleveland to Dr. O. Orías. Scholarships will be also given in Argentina by the Guggenheim Foundation.

Prizes Awarded

Dr. M. Royer obtained the prize which during the year 1929 was assigned for the best thesis of medicine. His thesis dealt with the normal and the pathologic physiology of urobilin.

Dr. A. Gutierrez obtained the prize which during the year from 1928 to 1929 was assigned for the best medical paper. His article dealt with the surgical anatomy of the peritoneum.

Dr. A. Battro obtained the Luis Guemes prize, for his clinical and experimental studies on occlusion of the coronary arteries.

Dr. Espejo Solá obtained the E. Wilde prize, for his studies on the hygiene of schools.

A New Review of Medicine and Surgery

The medical and scientific productions of the Latin-American countries are not well known in the countries of Europe and North America owing to the difficulties of language and, more particularly, by reason of the limited circulation of the Latin-American reviews. To the latter factor may be ascribed the fact that also the mutual knowledge between the Latin-American countries is very slight, it being common for the works and the activities of a South American author to be better known in countries of other continents than in the other countries of South America. The publishing house of Masson & Cie, Paris, has begun in Paris the publication of the *Revue Sud-Américaine de Médecine et de Chirurgie*, a French review, under the management of Joao Coelho, which will contain South American scientific articles. The review will comprise original articles, a current literature department and accounts of medical society meetings. The extensive connections of this publishing house throughout the world will assure a wide distribution of the review in all countries.

NETHERLANDS

(From Our Regular Correspondent)

Nov. 4, 1930.

Trichina in Pigs in the Dutch East Indies

Trichinosis, as a disease, is unknown in the Dutch East Indies, though it is not impossible that a case may occur now and then. As far as known, there is no regular search made for *Trichina* in connection with the control of food products. Nevertheless, in order to be on guard, from time to time a sample of meat is taken, for examination, from animals killed at the abattoir in Medan, Sumatra East Coast. It has been found that parasites are discovered in every sixty-third animal examined. A little later, daily examinations were made and it was found that the cases were not so rare as supposed. Thus far, 901 pigs have been examined, 830 of which were from China and 68 from Batac, while 3 were wild boars. There were nine animals from Batac affected with the disease. Those from China were not affected. After the discovery of the ninth case of *Trichina* in the pigs from Batac, no more supplies from there were bought. The finding of parasites is important from the standpoint of compulsory control of the food products offered for sale in a community. Under the present circumstances, with human beings, dogs, pigs and rats living in such close proximity, the conditions are too favorable for the propagation of the disease. The dissemination can best be checked by prohibiting the exportation of animals from infected regions.

The Crusade Against Tuberculosis

The *Verslagen en Mededeelingen betreffende de Volksgezondheid* publishes statistics on the mortality from the various forms of tuberculosis. The adjoining tabulation shows the mortality for 10,000 of population.

Year	Pulmonary Tuberculosis	Cerebral Tuberculosis	Other Forms	All Forms
1924	7.91	1.43	1.28	10.68
1925	7.01	1.29	1.56	9.86
1926	7.22	1.13	1.33	9.68
1927	7.07	1.09	1.31	9.49
1928	6.16	1.98	1.27	8.42
1929	6.42	0.96	1.23	8.61

The organization of consultation centers has made progress, and the number of visits on the part of patients is steadily increasing. The number of new patients registered for the first time, during the years 1924 to 1929, was as follows: 1924, 16,572; 1925, 22,426; 1926, 24,340; 1927, 25,522; 1928, 26,251, and 1929, 28,722.

Dengue and Yellow Fever

The relationship between dengue and yellow fever has already attracted attention. Snijders, in the *Nederlandsch Tydschrift voor Geneeskunde*, publishes the results of his study on the subject. The clinical picture of mild cases of yellow fever closely resembles that of dengue; the transmitting agent for both diseases is *Aedes aegypti*; in both diseases the insect can become infected only during the first three days of the disease, and th "extrinsic incubation" covers a period of from nine to twelve days. Recently, Stefanopoulo, endeavoring to verify the researches of Blanc and his collaborators in Greece, showed that convalescents' serum of dengue has no effect on the virus of yellow fever. Attempts to infect rhesus monkeys with the virulent blood of dengue patients proved unavailing. No *immunization* phenomena toward yellow fever followed the *inoculation.* It is evident that dengue and yellow fever are not *one and the same disease.* Snijders emphasizes, however, their close relationship. Furthermore, it should be borne in mind that the term "dengue" is collective and covers a group of diseases. It is quite possible that other forms belonging to this group are immunologically nearer to yellow fever than is the form observed in Greece. Bonne referred to this possibility in connection with a disease similar to dengue, which he studied, in 1923, in Dutch Guiana.

Malaria in Dutch East Indies

Dr. W. De Vogel, member of the permanent committee on public health, gave recently a survey of conditions in the Dutch East Indies as regards malaria, and called attention to the fact that, contrary to the observations in certain countries of Europe, the urban mortality is much higher than that of the rural districts. The conditions are similar, therefore, to those that prevail in the United States. He confined his studies more particularly to the island of Java. The rural population here is so preponderant that the high urban mortality passes unnoticed in the figures of the average mortality of the entire population. The combined mortality of the rural districts and the cities, during the period 1912 to 1923, was 20 per thousand of population annually. If this figure is compared with the average mortality rate during the same period in the three principal cities of Java—namely, Batavia, Semarang and Surabaya—seaports on the northern coast of the island, one finds the exceedingly high averages of 46.8 per thousand for Batavia, 55.25 per thousand for Semarang and 55.06 per thousand for Surabaya. These figures have stimulated the public health service, during the past several years, to institute a persevering search to discover the causes of this situation, in order to combat them in an effective manner. Its efforts have not been in vain. The average annual mortality in the three cities mentioned has been lowered, during the period 1924 to 1929, to 39 per thousand for Batavia, 31 per thousand for Semarang and 29 per thousand for Surabaya. But if, for the cited period of five years, the annual mortality of the entire population of Java is compared with the average annual mortality of the urban population, there are obviously many difficulties to be surmounted before a situation comparable to that of the Netherlands can be attained.

Postvaccinal Encephalitis

In the 1929 report of the society for the promotion of antismallpox vaccination, in Rotterdam, the secretary announced that in the Netherlands most children are vaccinated between the second and the fourth year (and of these the majority between the third and the fourth year). Corresponding to this more advanced age for vaccination, the Netherlands has a higher percentage of postvaccinal encephalitis than other countries. The following figures deserve to be compared: the Netherlands, one case of encephalitis for each 4,000 first vaccinations; England, one case of encephalitis for each 48,000 first vaccinations, and Germany, one case of encephalitis for each 750,000 first vaccinations.

Immigration to the East Indies

The total immigration of all classes of population to the Dutch East Indies diminished, in 1929, 10 per cent as against the figures for 1928, the total having been about 6,000. This diminution was due exclusively to the decline in emigration from China.

BERLIN

(From Our Regular Correspondent)

Nov. 17, 1930.

A Health Record Book

In the decade preceding the war, the life expectancy of every German was 50 years; according to mortality statistics based on the census of 1925 the present life expectancy is 56 years, in spite of the crowding of the population into inadequate dwellings and the vast number of unemployed. Professor Grotjahn, social hygienist at the University of Berlin, brought out recently at a meeting that this pleasing development in public health is due in part to progress made in the sociohygienic welfare work of the communal administrations. But the development of the welfare system is not yet complete. The most important data on the various welfare cases, which today are scattered about in the files of the welfare centers, should be collected at a central bureau. In 1891, W. Schallmayer published an article in which he demanded the introduction of what he termed a *krankenpass,* or health record book, to be required to be carried by every citizen of the *reich* and to be deposited at certain stated times at a central bureau, to serve as sources of information in definite cases. Such a record book would not only be valuable to the individual in questions involving marriage and evidence of hereditary weaknesses, for example, but would furnish also an excellent basis for statistics on chronic disease, which today are occupying the attention of hygiene to an increasing extent. Not only statistical facts pertaining to birth, marriage and death should be reported to the registrar's office but also the most important illnesses or disorders, accidents and physical data in general, where they should be recorded in individual record books, to which not only the subject himself but also the authorities should have access under exactly defined legal conditions, for their own information or in connection with welfare, legal and insurance matters, including determination of disablement in compensation claims.

The Housing Situation

The housing problem, which is the most important hygienic problem of today, has received a certain clarification from the figures of the federal census, which have just been published in a two-volume work and offer for the first time since the war a comprehensive survey of housing conditions. On the basis of this rich material, Prof. E. Friedberger, the director of the Forschungsinstitut für Hygiene in Dahlem, near Berlin, gives in an article in the *Deutsche medizinische Wochenschrift* a characterization of the housing situation in Germany and opens ways for combating it. From the statistics it appears that, in 1927, there were in the German *reich,* exclusive of the Saar region, 1,150,000 persons who were seeking suitable dwellings, 560,000 of whom had no independent dwelling whatever. The majority of the buildings used for residential purposes are small houses; but the majority of the dwellings are found in large or in moderate-sized buildings. The number of large buildings occupied for residential purposes increases with the size of the commune or city. In the small towns, more than 40 per cent of the dwellings consist of one or two family houses, while in the large cities scarcely 10 per cent are of that class. Of the houses erected since 1918, about half are designed for one family only; but the influence of that change in style of construction on the general nature of the residential buildings as a whole is scarcely recognizable. One fifth of all the one-family houses date from the postwar period. More than nine tenths of the dwellings consist of small apartments (one to three rooms) and moderate sized apartments (four to six rooms).

An index of the bad housing situation can be obtained from the average number of persons to each living room. In the German cities more than three million persons live in overcrowded dwellings. The average number of persons to an occupied dwelling is 3.8; 79 per cent of dwellings have an average of two persons to each living room, and 5.6 per cent of all dwellings in communes with more than 5,000 inhabitants (affecting a total of 3,200,000 persons) are overcrowded. Almost 10 per cent of the urban population lives, therefore, in dwellings in which there are more than two persons to each living room. Another significant index of the housing situation at present is the increase in the number of subtenants since the war, the number being seven times as great as formerly. At present the number of subtenants equals the number of tenants at first hand. In the smaller towns, 6 per cent, and in the larger cities, 10 per cent, of all dwellings have subtenants. The dearth of reasonably priced dwellings affects, of course, more particularly the families with a large number of children (four or more, unmarried). The number of persons per living room in such families is almost twice as great as in the smaller families. In the sixteen largest cities, there are about four persons to a dwelling; but in the families with four or more children the average number is seven. The bad housing situation of recent years is due partly to the interruption of building activities and partly to the unusual increase in the number of households resulting from the fact that the number of persons more than 15 years old has increased, of late, 21.3 per cent, whereas the number under 15 years of age has increased only 17.9 per cent. The marriage rate is high, with the result that the number of households has increased 19.5 per cent in recent years. It is the author's opinion that the type of residence that will ease the situation most rapidly is not the one-family dwelling but the large apartment house constructed in accordance with hygienic principles. It is true that the private home with its own yard, located in the outskirts of the city, is preferable, from the hygienic point of view, to the dwelling in the massive apartment house, even though it may differ materially from the old type of tenement house. But the expense is too great, and therefore the idea of the one-family dwelling is being abandoned. Thus, in 1928, the number of new one-family dwellings in the large cities was reduced 50 per cent. The large apartment house is the only solution that is practicable. The buildings should be so constructed that the residential units can be easily enlarged or made smaller to meet changing conditions in the families occupying them. If children are born, it should be possible to secure additional adjoining rooms, given up perchance by a family whose children have grown up and left the apartment; or, if that is not always feasible, a larger or a smaller apartment should be available in the same building. The apartment house affords persons of moderate means an opportunity of securing the advantages of such mechanized equipment as a central heating plant, bathrooms, laundries and modern cooking facilties, which otherwise only occupants of luxurious dwellings can enjoy, whereas they are especially important for persons of moderate means because of the time saved, and, in addition, they have a high hygienic value.

The Use of Aluminum Vessels for Cooking

On account of persistent assertions that the use of aluminum vessels for cooking is injurious to health because the cooking processes cause small particles of the metal to become disintegrated, the federal bureau of health instituted a thorough inquiry. After many experiments on animals, extending over months, and also observations on man with comparatively large doses of aluminum (much larger than would be involved in abrasions from cooking vessels), no manner of disturbances could be noted, and it was found that the metal contained in the ingested metal compound does not enter the body fluids from the intestine but is carried off through the gastro-intestinal tract. Neither in the blood, the urine nor in the organs and tissues of dogs allowed to ingest, during a year's experimentation, significant doses of aluminum could more aluminum than usual be found. Nor could any injuries to health or even disturbances of well being be observed in man. Thus the opinion of the bureau, rendered in 1893, is confirmed—that household and kitchen vessels of aluminum can be employed with perfect safety.

Clinic for Jaw Surgery

In the Charité Hospital in Berlin, a clinical center for the surgical department of the Zahnärztliches Institut has been established on the first and second floors of the preserved north wing of the old Charité building. The clinic is under the direction of Professor Axhausen, who was for many years a pupil of Professor Hildebrandt. With the creation of this new clinic, modern surgery of the jaws has now been officially recognized as a part of dental surgery. The range of activity of the Kieferklinik is easily delimited. In addition to the severe types of disease that have their origin in the dental apparatus, all pathologic conditions are included that require for their treatment a combination of surgical and dental procedures.

Physicians Who Are Total Abstainers

Der Verein abstinenter Aerzte des deutschen Sprachgebietes (association of physicians of German-speaking countries who are total abstainers from alcoholic beverages) met, September 2, under the direction of its chairman, Geheimrat Abderhalden of Halle, in the auditorium of the Deutsches Hygiene-Museum in Dresden. The society has increased its membership in Germany in recent years, but the number is by no means equal to the percentage of members in some other countries, such as Austria and Switzerland, which have, on a percentage basis, ten times as many total abstainers as Germany. The society has never advocated prohibition. The society, however, regards it as fitting that men and women who demonstrate the manifold injuries caused by alcohol and are desirous of combating them should apply their deductions to their own persons. At the scientific session, Ministerialrat Thiele of Dresden spoke on "Industrial Hygiene and Alcohol," Senator Dr. Holitscher of Komotau on "Alcohol and Health," and Abderhalden on the aims of the association. Scientific bases for combating alcohol in an unequivocal manner must be supplied, and by lessening the expenditures for alcohol the means should be secured for a type of physical and mental culture that will exclude alcohol as far as it is possible.

The Antialcohol Society

At the annual meeting of the Deutscher Verein gegen den Alcoholismus the main topics discussed were: Traffic Accidents Due to Alcohol. Their Prevention and the Determination of Penalties; Welfare Aid to Alcohol Addicts; Legal Protection for the Children of Alcohol Addicts; Treatment of Alcohol Addicts (Open or Closed Type of Sanatorium). Without the cooperation of the psychiatrist, whose duty it is to study the various types of alcohol addicts from the hereditary, biologic point of view and from the standpoint of individual psychology, there is no consistent treatment and cure of addicts. Especially in regions in which strong brandy is indulged in to excess, severe damage to health becomes manifest. Professor Burgers of Königsberg called attention to the fact that drinking to excess is particularly noticeable in connection with epidemics, with the result that the mortality is still further increased.

Prize for Paper on Diseases of Metabolism

The Gesellschaft fur Verdauungs- und Stoffwechselkrankheiten, at its tenth general assembly, offered (for the coming year only) a "Boas prize" amounting to 1,000 marks, or $238. The topic selected for the prize offering is "The Bacterial and the Abacterial Genesis of Disorders of the Pancreas." Competing papers must be turned in by April 1, 1931. Further details may be secured from Prof. R. von den Velden, general secretariat, Berlin W 30, Bambergerstr. 49.

Marriages

Cavins R. Marshall, Indianapolis, to Miss Margaret E. Jones of Gas City, Ind., November 22.

George E. Nesche, Oakland, Calif., to Miss Marjorie Ayers of Lodi, Calif., October 2.

Gilbert L. A. Dailey to Miss Mary Helen Geiser, both of Harrisburg, Pa., October 30.

James F. Balch, Jr., to Miss Margaret Lenora Guthrie, both of Indianapolis, October 9.

Karl W. Doege, Marshfield, Wis., to Miss Elizabeth Meyeroff, in Germany, recently.

George J. Searle, Jr., Mansfield, Ohio, to Miss Mary Brown, November 19.

Arthur V. Cole, Hammond, Ind., to Miss Roberta Gardner in October.

Clarence J. Buckley, Cleveland, to Miss Marian Smith, October 29.

Deaths

Robert Wilkinson Johnson, Baltimore; University of Pennsylvania School of Medicine, Philadelphia, 1879; member and past president of the Medical and Chirurgical Faculty of Maryland; member of the American Orthopedic Association and the American Surgical Association; formerly professor of principles and practice of surgery, Baltimore Medical College; at one time on the staffs of the Maryland General Hospital and the Church Home and Infirmary; aged 76; died, November 13, of carcinoma of the liver and myocarditis.

William Elisha Lawson, Jr., Albany, N. Y.; University College of Medicine, Richmond, Va., 1911; member of the Medical Society of the State of New York; associate in medicine, Albany Medical College; associate physician to the Metropolitan Sanatorium, Mount McGregor, 1913-1920; medical director of the Albany Hospital Tuberculosis Sanatorium; aged 43; died, November 15, in the Saranac Lake (N. Y.) General Hospital, of spontaneous subarachnoid hemorrhage.

Henry Alexander Macgruer, Syracuse, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1898; professor of diseases of the skin and syphilis, Syracuse University College of Medicine; served during the World War; at one time city health commissioner; formerly on the staff of St. Mary's Maternity and Infant Hospital; aged 56; died, November 15, of portal cirrhosis of the liver and cholemic edema of the lungs.

Harry Neal Kerns, Livermore, Calif.; University of Michigan Medical School, Ann Arbor, 1912; member of the American Psychiatric Association; at one time assistant clinical professor of mental hygiene and psychiatry, Yale University School of Medicine, New Haven; formerly a major in the Medical Corps, U. S. Army; on the staff of U. S. Veterans' Hospital number 102; aged 43; died, November 10.

Cyrus Thompson, Jacksonville, N. C.; Medical Department of the University of Louisiana, New Orleans, 1878; member and past president of the Medical Society of the State of North Carolina; county superintendent of health, 1907-1913; since 1913 member of the state board of health; member of senate in 1885, and secretary of state, 1897-1901; aged 75; died, November 20, of pneumonia.

Hermon Camp Gordinier ⊕ Troy, N. Y.; Albany (N. Y.) Medical College, 1886; member of the American College of Physicians and the American Neurological Association; professor of medicine at his alma mater; on the staffs of the Mary McClellan Hospital, Cambridge, and the Samaritan Hospital; aged 66; died, October 19, of coronary thrombosis.

Charles Thomson Chamberlain, Natchez, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1902; member of the Mississippi State Medical Association and the American College of Surgeons; served during the World War; on the staff of the Chamberlain-Rice Hospital; aged 50; died, November 6.

Robert Ingram, Moscow, Ohio; Miami Medical College, Cincinnati, 1893; member of the American Psychiatric Association; for many years associate professor of psychiatry, University of Cincinnati College of Medicine; formerly on the staff of the Cincinnati General Hospital; aged 64; died, November 1, of cerebral hemorrhage.

Laura Viola Gustin Conibear, Attleboro, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1874; member of the Massachusetts Medical Society; for twelve years member of the school board; formerly on the staff of the Sturdy Memorial Hospital; aged 78; died, November 3, of abdominal carcinoma.

Henry Mortimer Cunningham, Vancouver, B. C., Canada; Columbia University College of Physicians and Surgeons, 1895; member of the American Laryngological, Rhinological and Otological Society, Pacific Coast Oto-Ophthalmological Society and the American College of Surgeons; aged 64; died, September 6.

Henry Hubbard Pelton, New York; Columbia University College of Physicians and Surgeons, New York, 1898; veteran of the Spanish-American and World wars; formerly on the staffs of the Bellevue and Roosevelt hospitals; aged 59; died, November 11, of cerebral thrombosis.

Fritz Rosenbladt, Council Bluffs, Iowa; State University of Iowa College of Medicine, Iowa City, 1904; member of the Nebraska State Medical Society; served during the World War; aged 55; died, November 8, in the Covenant Hospital, Omaha, of heart disease.

John Eayre Robison, Frankfort, Ind.; Medical College of Indiana, Indianapolis, 1901; member of the Indiana State Medical Association; served during the World War; on the staff of the Clinton County Hospital; aged 59; died, November 14, of heart disease.

Frederick Adelbert Swartwood ⊕ Waseca, Minn.; University of Michigan Medical School, Ann Arbor, 1886; formerly mayor; member of the school board; on the staff of the Waseca Memorial Hospital; aged 69; died, November 12, of heart disease.

Franklin Harris Lackey, Fallston, N. C.; University of Maryland School of Medicine, Baltimore, 1915; member of the Medical Society of the State of North Carolina; aged 41; died, November 15, in the Shelby (N. C.) Hospital, of cerebral hemorrhage.

Ralph A. Harding, Reading, Pa.; Medical Department of Columbian University, Washington, D. C., 1895; member of the Medical Society of the State of Pennsylvania; aged 58; died, October 19, as the result of accidentally inhaling hydrogen cyanide gas.

Ruth Addie Gay, Oklahoma City, Okla.; Medical Department of Drake University, Des Moines, Iowa, 1897; Woman's Medical College of Pennsylvania, Philadelphia, 1904; aged 60; died, October 31, of cerebral hemorrhage and arteriosclerosis.

Jesse Badner, Jamaica, N. Y.; University and Bellevue Hospital Medical College, New York, 1925; member of the Medical Society of the State of New York; aged 28; died, October 31, in the Jamaica Hospital, of epidemic encephalitis.

Herbert Helmuth Holderman ⊕ Shenandoah, Pa.; Jefferson Medical College of Philadelphia, 1916; chief surgeon on the staff of the Locust Mountain State Hospital; aged 37; was instantly killed, November 4, in an automobile accident.

Clifford John Abbott, Holland, Mich.; Hahnemann Medical College and Hospital, Chicago, 1903; member of the Michigan State Medical Society; on the staff of the Holland City Hospital; aged 60; died suddenly, October 12, of heart disease.

Samuel Thomas Bell, Alpena, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1886; member of the Michigan State Medical Society; on the staff of the Donald McRae Hospital; aged 69; died suddenly, November 5, of heart disease.

David R. Perkins, Marshville, N. C.; Baltimore Medical College, 1903; member of the Medical Society of the State of North Carolina; aged 52; died, November 12, in the Ellen Fitzgerald Hospital, Monroe, of carcinoma of the small intestine.

Erton Edwin Poynor, Stilwell, Okla.; University of Arkansas School of Medicine, Little Rock, 1904; member of the Oklahoma State Medical Association; aged 49; died suddenly, November 12, in Louisville, Ky., of heart disease.

Hugo Frederic Maetke, Dayton, Ohio; Medical Department of Columbia College, New York, 1892; member of the Ohio State Medical Association; aged 60; died suddenly, November 10, in Miami, Fla., of cerebral hemorrhage.

John S. Martin, Muncie, Ind.; Homeopathic Hospital College, Cleveland, 1883; member of the Indiana State Medical Association; for many years member of the school board; aged 78; died, October 7, of cerebral hemorrhage.

Fred Elmer Bryar, Concord, N. H.; Dartmouth Medical School, Hanover, 1894; member of the New England Society of Psychiatry; on the staff of the State Hospital; aged 59; died, October 25, in Boston, of bronchopneumonia.

Charles Augustus Short, San Jose, Calif.; Northwestern University Medical School, Chicago, 1915; member of the California Medical Association; served during the World War; aged 40; died, October 26, of heart disease.

John Patrick Redmond ⊕ Cedar Rapids, Iowa; Northwestern University Medical School, Chicago, 1903; served during the World War; formerly city physician; aged 52; was found dead, November 7, of aneurism.

Walter Joseph O'Keefe ⊕ Providence, R. I.; University and Bellevue Hospital Medical College, New York, 1910; aged 44; died, October 10, of *Staphylococcus albus* septicemia as the result of a carbuncle of the upper lip.

Arthur Wayland Slaught, Des Moines, Iowa; Chicago Homeopathic Medical College, 1887; formerly county coroner and member of the state legislature; aged 75; was found dead in bed, October 28, of coronary sclerosis.

Ralph Frank Goetter, Colville, Wash.; St. Louis University School of Medicine, 1915; member of the Washington State Medical Association; served during the World War; aged 40; died, October 5, of pneumonia.

James M. Caskie, Remington, Va.; College of Physicians and Surgeons, Baltimore, 1880; member of the Medical Society of Virginia; aged 70; died, November 4, of injuries received when he was struck by an automobile.

Louis P. Faust ⊕ Schenectady, N. Y.; New York Homeopathic Medical College, 1877; for many years member of the school board; on the staff of the Ellis Hospital; aged 75; died, November 8, of cerebral hemorrhage.

William Henry Sutherland, Rochester, N. Y.; Cornell University Medical College, New York, 1900; member of the Medical Society of the State of New York; aged 52; died, November 8, of chronic myocarditis.

Julius Edward Claussen, Beatrice, Neb.; Rush Medical College, Chicago, 1883; Medical Department of the University of the City of New York, 1888; aged 75; died suddenly, September 30, of organic heart disease.

William Josiah Parmelee, Springfield, Mass.; Medical Department of the University of the City of New York, 1890; member of the Massachusetts Medical Society; aged 72; died, October 28, of coronary thrombosis.

Charles H. Humphreys, Dayton, Ohio; Medical Department of Columbian College, Washington, D. C., 1869; member of the Ohio State Medical Association; aged 85; died in November, of chronic myocarditis.

Bryant Addison Gover, Burnside, Ky.; Hahnemann Medical College and Hospital of Philadelphia, 1930; aged 27; died, October 4, in the Somerset (Ky.) General Hospital, of injuries received in an automobile accident.

Thomas Jefferson Murray, Butte, Mont.; Jefferson Medical College of Philadelphia, 1879; member of the American College of Surgeons; aged 75; died, November 1, of arteriosclerosis and cerebral thrombosis.

Davis P. Borden, Paterson, N. J.; Eclectic Medical College of the City of New York, 1873; for many years member of the state board of medical examiners; aged 80; died, November 13, of chronic myocarditis.

George Allen Rush, Kansas City, Mo.; University Medical College of Kansas City, 1907; member of the Missouri State Medical Association; aged 47; died, November 18, of poison, presumably self-administered.

Ralph Willis Herbert, Manasquan, N. J.; New York Homeopathic Medical College, 1881; formerly member of the board of health and school board; aged 72; died suddenly, October 22, of heart disease.

Samuel Herbert Malpas, Indianapolis; Kentucky School of Medicine, Louisville, 1893; member of the Indiana State Medical Association; aged 62; died, November 15, in St. Vincent's Hospital, of nephritis.

William Jackson Grady, Stephenson, Miss.; Memphis (Tenn.) Hospital Medical College, 1900; member of the Mississippi State Medical Association; aged 52; died, October 30, of cerebral hemorrhage.

James H. Lyons ⊕ Troy, N. Y.; Albany Medical College, 1890; past president of the Rensselaer County Medical Society; on the staff of the Leonard Hospital; aged 72; died, November 8, of heart disease.

George C. Taylor, Cambridge, Ohio; Starling Medical College, Columbus, 1898; aged 54; died suddenly, November 18, in the Good Samaritan Hospital, Lexington, Ky., of acute dilatation of the heart.

Alfred Bernard Jordan, Albany, Calif.; University of Michigan Homeopathic Medical School, Ann Arbor, 1890; University of Illinois College of Medicine, Chicago, 1902; aged 71; died, October 11, of pneumonia and diabetic acidosis.

Elias Sheridan McCord, Delmar, Iowa; Medical Department of Drake University, Des Moines, 1894; formerly county coroner; mayor of Delmar; aged 62; died, November 10, in Clinton, of pneumonia.

Herbert Kilpatrick, Washington, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1891; aged 67; died, October 30, of bronchopneumonia, myocarditis and diabetes mellitus.

J. Martin Voorhees, Detroit; Long Island College Hospital, Brooklyn, 1897; aged 60; died, October 30, as the result of injuries received when the automobile in which he was driving, overturned.

Charles Maxwell MacGhee, Detroit; Tufts College Medical School, Boston, 1906; member of the Michigan State Medical Society; aged 57; died, August 3, of myocarditis and bronchopneumonia.

David Baird, Jr. ⊕ Florence, N. J.; Bellevue Hospital Medical College, New York, 1891; aged 61; died, November 7, in the Burlington County Hospital, Mount Holly, of streptococcic sore throat.

Joseph Raphiel, Houma, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1913; aged 46; died, November 8, in the U. S. Marine Hospital, New Orleans, of chronic nephritis.

Nathan M. McCoin, Gainesboro, Tenn. (licensed, Tennessee, 1889); member of the Tennessee State Medical Association; aged 72; died, November 3, of bronchial asthma and myocarditis.

George Grant Smith, Parkman, Ohio; Western Reserve University School of Medicine, Cleveland, 1912; aged 64; died, October 31, in a hospital at Cleveland, of pneumonia, following an operation.

Giuseppe Tartaro, Buffalo; Royal University of Palermo Faculty of Medicine and Surgery, Palermo, Italy, 1895; served during the World War; aged 59; died, October 12, of cerebral hemorrhage.

Elmer Ellsworth Brown ⊕ Bangor, Maine; Medical School of Maine, Portland, 1888; on the staff of the Eastern Maine General Hospital; aged 69; died in September, of angina pectoris.

Louis J. Paris, Burlington, Vt.; University of Pennsylvania School of Medicine, Philadelphia, 1888; aged 66; died, November 9, in the Mary Fletcher Hospital, of heart disease.

Nathaniel Corn, Pikeville, Ind.; Louisville (Ky.) Medical College, 1887; aged 79; died, November 8, in the Walker Hospital, Evansville, of injuries received in an automobile accident.

Ernest Orion Finney ⊕ Weiser, Idaho; University of Illinois College of Medicine, Chicago, 1906; aged 51; died, October 1, in Chicago, of myocarditis and coronary embolism.

Samuel Sterling Northington, South Hill, Va.; Jefferson Medical College of Philadelphia, 1881; member of the Medical Society of Virginia; aged 70; died, October 27, of heart disease.

Edwin Augustus Morse, Appleton, Wis.; Chicago Medical College, 1888; member of the State Medical Society of Wisconsin; aged 69; died, November 10, of coronary sclerosis.

Caleb Rodney Layton, Georgetown, Del.; University of Pennsylvania School of Medicine, Philadelphia, 1876; formerly member of the state legislature; aged 85; died, November 11.

George Nelson Lapham ⊕ Boston; Boston University School of Medicine, 1900; associate professor of diseases of the chest at his alma mater; aged 58; died, September 30.

John Davis Criss, Pittsburgh; University of Wooster Medical Department, 1879; member of the Medical Society of the State of Pennsylvania; aged 75; died, November 8.

Pressley Spurgeon Thomas, Great Falls, S. C.; Medical College of the State of South Carolina, Charleston, 1917; aged 38; died, November 12, in the Columbus Hospital.

Andrew Jackson Roquemore, Shreveport, La.; University of Louisville (Ky.) School of Medicine, 1886; also a druggist; aged 70; died, November 4, of cerebral arteriosclerosis.

Albert William Sherman, Burlington, Iowa; University of Michigan Medical School, Ann Arbor, 1889; aged 68; died, October 14, in a local hospital, of lymphatic leukemia.

John H. Randle, Covington, Ga.; Chattanooga (Tenn.) Medical College, 1899; member of the Medical Association of Georgia; aged 60; died, November 5, of pyelitis.

George W. Thompson, Stockwell, Ind.; Medical College of Indiana, Indianapolis, 1897; aged 62; died, November 1, in the Ross Sanatorium, Lafayette, of tuberculosis.

William Rundle Walters, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1887; chairman of the board of education; aged 67; died, October 14.

Edwin C. Hamilton, Kankakee, Ill.; Starling Medical College, Columbus, 1885; on the staff of St. Mary's Hospital; aged 70; died, November 18, of myocarditis.

Charles D. McRae, Rochelle, Ga.; University of Maryland School of Medicine, Baltimore, 1889; formerly member of the state legislature; aged 66; died, October 3.

Zachary Taylor Holtsclaw, Larchwood, Iowa; State University of Iowa College of Medicine, 1881; aged 83; died, November 6, in Nampa, Idaho, of uremia.

Robert Taylor, Coscob, Conn.; Long Island College Hospital, Brooklyn, 1871; Bellevue Hospital Medical College, New York, 1874; aged 81; died, November 1.

Jasper Corn, Frazeysburg, Ohio; Cincinnati College of Medicine and Surgery, 1873; also a druggist; aged 82; died, November 14, of cerebral hemorrhage.

Dowling Benjamin, Camden, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1877; aged 81; died, November 20, of cancer of the bladder.

Israel P. Birney, Wheeling, W. Va.; Cincinnati College of Medicine and Surgery, 1879; aged 77; died, October 28, in the Wheeling Hospital, of arteriosclerosis.

Harry Houston Hughart, Tombstone, Ariz.; University College of Medicine, Richmond, Va., 1900; aged 54; died suddenly, November 3, of heart disease.

Theodore Dudley Rountree, Rockdale, Texas; University of Virginia Department of Medicine, Charlottesville, 1902; aged 50; died, October 5, in San Antonio.

Joseph Hannold McElHinney, Palm City, Calif.; Eclectic Medical Institute, Cincinnati, 1873; aged 80; died, October 4, in Hollywood, as the result of a fall.

Wallace A. E. De Beque ⊕ De Beque, Colo.; Denver College of Medicine, 1882; Civil War veteran; aged 89; died, September 10, of bronchopneumonia.

John McKinney Thornton, Denver; Medical College of Ohio, Cincinnati, 1873; aged 83; died, September 27, in Presbyterian Hospital, of chronic cystitis.

Hial A. Wheeler, Creswell, Ore.; State University of Iowa College of Medicine, Iowa City, 1881; formerly a clergyman; aged 76; died, October 12.

John S. Cook, Beecher City, Ill.; Missouri Medical College, St. Louis, 1880; also a minister; aged 81; died, October 22, of dilatation of the heart.

Abraham Behm Kauffman, Lancaster, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1903; aged 56; died, November 7, heart disease.

William I. Harkey, Ola, Ark.; University of Arkansas School of Medicine, Little Rock, 1893; aged 80; died, October 19, in a hospital at Little Rock.

Emma H. Butman, Toledo, Ohio; Homeopathic Hospital College, Cleveland, 1890; aged 81; died, November 16, as the result of a cerebral hemorrhage.

Mary Riddle Wilcox, Bala-Cynwyd, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1891; aged 76; died, November 4, of angina pectoris.

William Rasbury Rankin, Montgomery, Ala.; Atlanta College of Physicians and Surgeons, 1901; aged 55; died, November 6, of heart disease.

Rose Finkelberg, Jackson, Mich.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1908; aged 59; died, November 4, of carcinoma.

Caleb A. Montgomery, Avery, Iowa (licensed, Iowa, 1886); aged 79; died, November 16, of injuries received when he was struck by a truck.

Samuel Addison Bowles, Westphalia, Mo.; Kentucky School of Medicine, Louisville, 1883; aged 78; died, September 30, of arteriosclerosis.

Ivan T. Myers, Brandon, Miss. (licensed, Mississippi, 1907); aged 49; died suddenly, November 1, in a hospital at Jackson, of heart disease.

William R. Henderson, Detroit; Detroit College of Medicine, 1886; aged 70; died, November 5, in the Harper Hospital, of intestinal obstruction.

Buxton B. Williams, Greensboro, N. C.; University of Maryland School of Medicine, Baltimore, 1883; aged 70; died, October 5, of nephritis, uremia and heart disease.

Charles Joseph Hart, Pulaski, Ill.; St. Louis College of Physicians and Surgeons, 1910; aged 58; died, October 12, in Cairo, of chronic myocarditis.

George Pryor McCloud, Fountain City, Tenn.; Tennessee Medical College, Knoxville, 1890; aged 81; died, October 24, of lymphatic leukemia.

William Lockwood Thornton Addison, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1898; aged 60; died recently.

William Lewis Chapman, Freeport, N. Y.; Bellevue Hospital Medical College, New York, 1893; aged 58; died, October 26, of myocarditis.

William E. Lawhead, Burlington, Iowa; College of Physicians and Surgeons, Keokuk, 1882; aged 74; died, October 13, in a local hospital.

John Blanchard Weever, Dallas, Texas; Jefferson Medical College of Philadelphia, 1858; aged 94; died, November 13, of bronchopneumonia.

Frederick Eugene Gullison, Yarmouth, N. S., Canada; McGill University Faculty of Medicine, Montreal, 1916; aged 40; died, October 3.

Corey Barton Cullison, Newark, Ohio; Starling Medical College, Columbus, 1891; aged 63; died suddenly, November 10, of heart disease.

Henry James Cartin ⊕ Johnstown, Pa.; Jefferson Medical College of Philadelphia, 1901; aged 61; died, October 30, of cerebral thrombosis.

Ada P. North, Rock Rapids, Iowa; Hahnemann Medical College and Hospital, Chicago, 1895; aged 66; died in October, of heart disease.

Lewis Hiram Tutt, Hannibal, Mo.; Bellevue Hospital Medical College, New York, 1888; aged 71; died, November 7, of heart disease.

Michael Edward Whelan, Roanoke, W. Va.; Kentucky School of Medicine, Louisville, 1893; aged 80; died, October 3, of carcinoma.

Edwin Boucelle Ferebee, Belcross, N. C.; College of Physicians and Surgeons, Baltimore, 1885; aged 65; died, September 25.

William Spencer Harrison, Overton, Nev.; Trinity Medical College, Toronto, Ont., Canada, 1884; aged 66; died, September 12.

Benjamin J. Shelton, Antioch, Tenn.; Medical Department, University of Tennessee, Nashville, 1882; aged 73; died, October 6.

Arnold Jolly, Florence, Ala.; Medical College of Alabama, Mobile, 1885; aged 69; died suddenly, September 29, of heart disease.

Edward Allan, Arthur, Ont., Canada; University of Toronto Faculty of Medicine, 1869; aged 85; died, September 30.

Adelia Bentley Barber, Los Angeles; New York Medical College and Hospital for Women, 1883; aged 79; died, October 4.

Lloyd Emerson Matter, Pasadena, Calif.; Rush Medical College, Chicago, 1904; aged 51; died, October 14, of rheumatic fever.

Benjamin F. Overmyer, Leiters Ford, Ind. (licensed, Indiana, 1897); aged 74; died, November 11, of pneumonia.

Elmer Ellsworth Scott, Ann Arbor, Mich.; Chicago Physio-Medical Institute, 1886; aged 67; died, September 29.

George D. Allen, Belleville, Wis. (registered, Wisconsin); aged 78; died, October 6, of malignant papilloma of the bladder.

Norbert P. Crawford ⊕ Pen Argyl, Pa.; Jefferson Medical College of Philadelphia, 1925; aged 30; died, October 18.

James McDowell, Pasadena, Calif.; Hospital College of Medicine, Louisville, Ky., 1880; aged 81; died, October 26.

Elijah Gilbert Howell, Bath Springs, Tenn. (licensed, Tennessee, 1889); aged 75; died, October 19.

Isaac N. Boyd, Pittsburgh; Eclectic Medical Institute, Cincinnati, 1885; aged 72; died, October 14.

Hiram I. Nance, Los Angeles; Rush Medical College, Chicago, 1877; aged 76; died in October.

Stephen A. Morse, Little Rock, Ark. (licensed, Arkansas, 1903); aged 80; died, October 18.

Bureau of Investigation

COLLECTION AGENCIES

The Experience of an Indiana Physician with the Robison National Clearing Company, Inc.

The short story that follows gives the experience of Dr. E. O. Price of Ladoga, Ind., with the Robison National Clearing Company, Inc., of Albany, N. Y., and New York City. At the outset, it should be stated that the contract which the Robison National Clearing Company uses in its collection service has many of the inequitable features of such contracts that The Journal has commented on at various times. The physician who signs such a contract assigns to the agency the accounts that he turns over to it; he agrees to pay the company 50 per cent on the first aggregate $100, 50 per cent on collections made through attorneys, 50 per cent on collections made in installments, 50 per cent on outlawed accounts, and 50 per cent on accounts that are withdrawn or settled by creditors. On all other collections, the physician agrees to pay 15 per cent. The contract further requires the physician to report immediately to the company any payments that are made direct to him and also to remit the company's commission at once. In addition, the company, under the contract, charges the doctor 50 cents for each account. The contract also states that after twelve months, any account that is not in process of adjustment, settlement or legal proceedings, will be released to the physician.

Among the inequitable clauses in this contract are first, the one that makes it in the interests of the agency to collect on installments; second, the one which makes it necessary for the physician to pay 50 per cent of the face value of any one of the accounts that he wishes to withdraw; third, the clause that makes it obligatory on the part of the physician immediately to send to the agency any money that may be paid to him direct, although there is nothing requiring the company to render any accounting of moneys collected by it at any definite stated intervals.

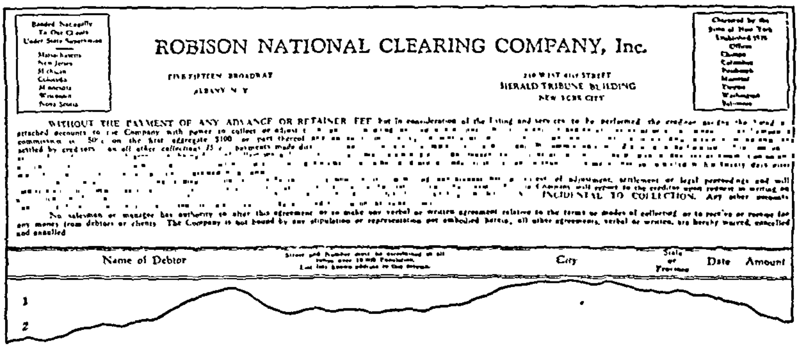
In June of this year, The Journal received a letter from Dr. E. O. Price of Ladoga, Ind., reading in part as follows:

> "*To the Editor:*—On May 16, 1930, one calling himself P. L. Rosenkrans came into my office and represented himself as collecting names of 'debtors' (bad-pay people), and saying he had covered Ohio and was making a canvass of Indiana; a blacklist, in fact, though he did not so denominate it. I told him I did not care for any such thing. He stated explicitly that he had no contracts to sign, represented no collecting agency, etc.
>
> "He then began calling off local names. Some I knew and more I did not know; some owed me or had in the past, most did not and I so told him. I was not asked to, nor did I sign or verbally make any contract. Some time after he left some of the people, at least, whose names he had read over to me, got a dun and I received a long list of names from the Robison National Clearing Company, Inc., 'Collection Engineers,' 515 Broadway, Albany, N. Y., asking me to O. K. the list.
>
> "I directed my attorney to notify the Robison company that I had not authorized them to make any collections for me nor given them any list of names for that purpose. In due time I received a letter, stating that they were very much surprised at my letter and enclosing a blank contract; the 'original' contract they claimed they held with my signature attached. Such a contract they absolutely do not have, none even having been asked for by the alleged P. L. Rosenkrans. Now, if you can give me any information about these people, I should like to know what their game is."

On receipt of Dr. Price's letter, the Bureau of Investigation wrote to the Robison National Clearing Company, briefly outlining Dr. Price's complaint and asking for an explanation. In reply came a letter from the general manager of this company, stating that they had in their possession an "original contract" bearing the signature of Dr. Price, which had been sent to them by their representative, P. L. Rosenkrans. They said, further, that they were unaware of any of the representations made by Rosenkrans and assumed that the list of claims was authentic; that they would cooperate with the Bureau of Investigation of the American Medical Association in looking into the matter; that they desired to have the name of the bank with which Dr. Price did business, so that they could send the original contract to the bank for the purpose of having Dr. Price call and see the signature; and that should the company find the signature to be other than that of Dr. Price, they would use this fact as evidence against Rosenkrans.

In due course, the contract was sent to the Ladoga State Bank, with which Dr. Price did business. The company, in the meantime, asked the Bureau of Investigation to advise Dr. Price to prepare and send along a list of all payments that he had received to date from the list of debtors. The Bureau wrote the company that it could see no reason for asking Dr. Price to go to that trouble, for the reason that the doctor had declared unequivocally that he had entered into no contract with the company and was under no obligation to furnish such a report.

Some days later the Bureau of Investigation received a letter from Dr. Price, enclosing duly executed affidavits from (1) Dr. Price himself; (2) a local justice of the peace who had known Dr. Price for thirty-five years; (3) from the owner of the local telephone company, who was also an insurance man, and with whom the doctor had transacted business for more than thirty years; (4) from the local banker, who had known Dr. Price for thirty-five years and who was thoroughly acquainted with the doctor's signature. All of these affidavits declared that the signature on the contract sent by the Robison National Clearing Company, Inc., was not the signature of Dr. E. O. Price.



ROBISON NATIONAL CLEARING COMPANY, Inc.

FIVE FIFTEEN BROADWAY
ALBANY N Y

HERALD TRIBUNE BUILDING
NEW YORK CITY

WITHOUT THE PAYMENT OF ANY ADVANCE OR RETAINER FEE

No salesman or manager has authority to alter this agreement or to make any verbal or written agreement relative to the terms or modes of collecting or to receive or receipt for any money from debtors or clients. The Company is not bound by any stipulation or representation not embodied herein, all other agreements, verbal or written, are hereby waived, cancelled and annulled

	Name of Debtor		City	State or Province	Date	Amount
1						
2						

The Bureau of Investigation then wrote the Robison National Clearing Company, Inc., stating that these affidavits had been received and enclosing copies of them. In reply, the Robison concern thanked the Bureau for the work that it had done and enclosed a copy of a letter that that company had just written under the same date to Dr. Price. This letter stated that on the basis of the information furnished it by the American Medical Association, the company was convinced "that there has been some underhand work done by Mr. Rosenkrans" and that it had discontinued any further action on the claims and the doctor's debtors would hear nothing further from the company. The letter added, however, that the Robison National Clearing Company felt that, under the circumstances, it believed the doctor would agree that the company should retain 50 per cent of the amount that it had collected, and that if this was satisfactory to the doctor, the company would, on hearing from him, send him a check for one-half the money that had been collected! The Bureau of Investigation, in reply to this, wrote the company that it was surprised that it should take such an attitude and added:

> "We venture to say that no honorable business concern that had done a citizen a wrong through the criminal actions of its representative, would think of asking that citizen to help pay some of the expense to which the business concern had been put through its representative's criminality."

This letter brought a somewhat caustic reply from the Robison National Clearing Company, suggesting in part that the Bureau of Investigation "spend a little of its good money looking up the records of some of the doctors that you are defending (eliminating Dr. Price from this statement), whose names are to be found in the files of every collection agency." However, the important fact is that the company sent Dr. Price a check for the full amount that it had collected.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TECHNIC OF STERILIZATION OF WOMEN

To the Editor:—In The Journal, October 25 (p. 1282), you mentioned the method suggested by R. L. Dickinson for sterilizing women. This method results in an occlusion of the tubal openings by means of an electric cautery. In my books on gynecology I do not find any reference to this procedure. If you can give me any information in regard to the technic used it will be greatly appreciated.

Paul Levi, M.D., Gowanda, N. Y.

Answer.—The method of sterilization suggested by Dickinson and used by him since 1912 is an office procedure. Its aim is to produce occlusion of both fallopian tubes at their entrance into the uterine cavity, and for this purpose an electrical cautery is used. Dickinson describes his method as follows: "Before sterilizing by the cautery wire (or by electrocoagulation), the shape and size of the cavity of the uterus must be defined. The uterine sound gives a very fair idea of the upper corner, whether acute angled, rounded or domed. In the latter cases the vestibule of the tube is difficult or impossible to find. For such conformations, visualization, as by roentgen shadow from injected iodized oils, is needed, or else the same skill with the new hysteroscopes of Rubin and Gauss and of Mikulicz-Radecki and Freund, as has been attained with their patent, the cystoscope. With the aid of the eye it may be possible, in the future, also to dilate the minute uterine funnel as accurately as the mouth of the ureter can be, should it be desired to reopen a cautery stricture later. . . . After the length of the cavity is determined, the cautery sound is slid up against the external os so as to admit only this length. The possibility of pushing in farther and perforating is prevented by the sliding shoulder fixed where needed. When the cautery tip has been nestled into one upper angle of the uterus, the current is turned on for from ten to thirty seconds, according to the vascularity of the lining, a succulent uterus needing a longer application of the current. A test is made by starting to draw the sound away. It should adhere rather firmly and bring away a shriveled fragment of tissue all about it. Only in case the uterus relaxes, as it does during curetting, need one consider new sounding and renewed cauterization at this session."

Illustrations and a more detailed description may be found in the following articles by Dickinson:

Simple Sterilization of Women by Cautery Stricture of the Intra-Uterine Tubal Openings, *Surg. Gynec. Obst.* **23**: 203 (Aug. 16) 1916.

Sterilization Without Unsexing, The Journal, Feb. 2, 1929, p. 373.

PAROXYSMAL TACHYCARDIA

To the Editor:—A woman, aged about 45, weighing about 200 pounds (90 Kg.), has had for the last five years what she calls spells of palpitation of the heart. The spells come on about once or twice a month. Her blood pressure is 225 systolic and 110 diastolic. There is a trace of albumin in the urine. The patient's pulse suddenly goes up to about 160 or 200. The patient is perfectly conscious and shows no distress with the exception of a tight feeling in the chest. These attacks may last from an hour to six or ten hours. The patient usually stays in bed while they last. The standard drugs for cardiac asthma show no effect on the patient's condition. However, when the patient takes morphine and begins to vomit, the spell stops in an instant and she feels perfectly well until another spell comes on, weeks later. Many things have been tried. The last drug I tried was an intravenous administration of a theophylline preparation but without any effect. The patient's condition was named paroxysmal tachycardia, but of course this name does not enlighten me any. Do you have any suggestion as to the treatment in this patient? Between the attacks her heart is perfectly compensated without any evidence of organic or functional trouble. Please omit name.

M.D., Iowa.

Answer.—If the pulse is regular, the diagnosis is probably that of a paroxysmal tachycardia. With such a history and such observations, this might be of either auricular or ventricular origin. It is important to know which, because the auricular type is of minor significance and the ventricular type is of much more serious portent. With a history of this kind, and over so long a period, one would assume that this is of auricular origin. If possible, graphic records should be obtained during the attack. The type of ectopic beats occurring between the attacks, whether of auricular or of ventricular origin, is presumptive evidence of the origin of the attacks. Such ectopic beats may occur rarely, and differentiation is uncertain at best.

Paroxysmal tachycardia is a rapid, regular rhythm, usually about 180 a minute, which does not change rate on change of posture or exertion, and which begins instantly and ceases instantly. The patient usually mentions the instantaneous onset, but the instantaneous offset may be masked by symptoms persisting a short time after the pulse returns to normal.

It would seem more probable that the attacks are of auricular origin. No drug is of value during the attack. Daily doses of quinidine may prevent the attacks, but the constant use of a depressant drug is of doubtful propriety in any case of paroxysmal tachycardia and especially so here, when the attacks are so far apart.

Emesis, or nausea, as in this case, will frequently stop the attacks and can be induced by placing the finger in the pharynx. Easier methods are often of avail, such as bending over in the sitting posture with the head between the knees; taking a deep breath and holding it; contracting the abdominal muscles so as to increase intra-abdominal pressure; coughing, and many other methods, which patients frequently discover themselves. If the physician will stand behind the patient during an attack and compress the carotid artery on one side between his finger and the cervical spine, the attack will frequently cease, owing possibly to vagus stimulation but more probably to stimulation of the carotid sinus. Swallowing a large bolus may stop the attack, or a large elastic capsule. Attacks are frequently precipitated by errors in diet, and this factor should receive attention.

If the pulse is absolutely irregular, the attack is probably an attack of paroxysmal auricular fibrillation. In such cases the patient should be put at rest and no drugs used until one is assured by the duration of the attack that the pulse is not going to return to normal, when digitalis may be started.

Paroxysmal auricular flutter occurs, but the rate in this case is too rapid.

Paroxysmal tachycardia of ventricular origin is usually consequent on coronary damage, especially a thrombosis, and its recognition is of the greatest importance.

PRECORDIAL PAIN

To the Editor:—A number of my patients have complained of a sharp sticking pain in the precordium of momentary duration and at infrequent intervals. Physical signs are absent, and I have ruled out organic disease of the heart, muscle, bone and nerve. In spite of its common occurrence I can find nothing in the literature concerning the nature of the condition. Can you refer me to any? Please use initials if answered in Queries and Minor Notes.

M.D., New Jersey.

Answer.—Excellent discussions on this variety of precordial pain may be found in "Diseases of the Heart" by James Mackenzie (Oxford Medical Publications, ed. 3, 1913, p. 57) and in "Heart Disease" by Sir William H. Broadbent (New York, William Wood & Co., ed. 4, 1906, p. 381).

Precordial pain in the absence of signs and symptoms of any of the cardiopathies may be the result of toxic influences, as tobacco or coffee, of direct pressure on the heart by a dilated stomach or colon, or of emotional or depressive states. As demonstrated by Mackenzie and by Head, it may furthermore be reflexly produced by derangements of any of the viscera and as such has been designated as "reflected pain." The explanation offered for this misreference is that since the viscera are insensitive to pain-producing stimuli, the pain is referred to the skin region that is supplied by the spinal segment from which the organ in question receives its sensory fibers, the misreference being due to a diffusion in the nerve centers. By amending any visceral abnormality, eliminating toxic agents and assuring the patient that there is no disease of the heart, thereby dispelling his apprehension, the disappearance of this symptom may be anticipated.

TREATMENT OF VARICOSE ULCER

To the Editor:—I have been treating a chronic varicose leg ulcer but cannot clean it up. This patient has never had any trauma, infection of the lower extremity, syphilis or phlebitis. Her occupation for a long time required constant standing. The superficial veins above are involved. The Trendelenburg sign is absent. I have used salves, liquids, light therapy and Unna's paste, and recently vein injection.

A. B. Barker, M.D., Peoria, Ill.

Answer.—Failure for a chronic varicose ulcer to heal in spite of supportive and injection treatment may be due to several causes. In the first place, it may not be a true varicose ulcer. The presence of dilated veins above the ulcers does not necessarily mean that the ulcer is caused by the veins, especially if the Trendelenburg sign is negative. If the reflux of blood from above cannot be properly demonstrated, the obliteration of veins cannot have much influence on the healing of the ulcer. The exclusion of specific infections such as syphilis, tuberculosis and different mycoses is important. The size and amount of fibrosis around the ulcer may hinder a proper epithelization. The site of the ulcer is also of influence. In certain areas, such as above the anterior tibial margin or below the malleoli, the skin is on a stretch, the margins easily retract, and the blood supply is comparatively poor. A peripheral arteriosclerosis may also hinder healing of the defect.

In such rebellious cases, if no specific etiology is found, the patient should be handled surgically and by men who have had enough experience in plastic surgery. The ulcer must be cleared up with hot boric acid dressings. When the granulations take on a healthy appearance and a scraping shows an absence or great diminution of bacteria, the callous margin of the ulcer is excised and a skin graft is applied. Whether a Thiersch graft, a pinch graft or a pedicled flap is used will depend on the individual case. Following the graft, Unna's paste boots have to be worn for several weeks.

OXALURIA

To the Editor:—For some time I have been seeing cases of oxaluria, usually accompanied by indicanuria plus 4. The symptoms have varied from acute, paroxysmal pain, as in ureteral colic, to chronic, indefinite aches and pains. By means of nitrohydrochloric acid, followed up by magnesium oxide and potash, combined in equal parts, I have been able to relieve the major symptoms of these patients, but have found that the cessation of the taking of these remedies is immediately followed by the reappearance of the calcium oxalate crystals and by pains. It is quite evident that in oxaluria there is faulty metabolism. Can you advise me *how to handle these cases?*

Rolla Camden, M.D., Parkersburg, W. Va.

Answer.—The excreted oxalates appear to be in part exogenous in origin and in part endogenous. The former are derived from such foodstuffs as contain large quantities of oxalates, such as asparagus, apples, cabbage, grapes, lettuce, rhubarb, spinach and tomatoes.

Excessive excretion of endogenous oxalates has been variously considered to be connected with faulty metabolism of all types of foodstuffs—proteins, fats and carbohydrates. Oxaluria occurs in some liver diseases and is reported to be present in diabetes mellitus.

Some workers have reported that the ingestion of certain strains of colon bacilli found in the feces in cases of oxaluria, produces oxaluria in normal subjects.

The following references may be consulted:

Hawk and Bergheim: Practical Physical Chemistry.
Viale, G.; Napoleoni, L., and Rosselli, D.: Oxaluria Phlorhizin in Diabetes, *Rev. soc. argent. de biol.* **4**: 737-742, 1928.
Lombardi, Ermanno: Pathogenesis of Oxaluria, *Riforma med.* **42**: 867 (Sept. 13) 1926.
Lombardi, Ermanno; and Piccininni, F.: *Riforma med.* **41**: 726 (Aug. 3) 1925; *Klin. Wchnschr.* **5**: 260 (Feb. 12) 1926.

DELAY IN DEVELOPMENT OF SPEECH

To the Editor:—A well developed child, aged 2 years, who is of proper height and weight, can find her way about the entire home, eats alone, knows people, but still does not talk. She talks and tries to repeat each word and knows the names of things but pronounces only half of the words. For instance, for "only" she says "on"; but she can say "ly" because I tried her by asking her to say "Leo," and all she said was "Lee." Please advise what could be the cause of it, and what there is to be done. Kindly omit name and address.

M.D., New York.

Answer.—From the samples given, it is not possible to reach a conclusion as to the cause. The fact that the child is well developed and shows good comprehension in proportion to her age would *tend to rule out an organic disease or defect with* resultant aphasia. Motor speech is sometimes much delayed in development and yet will evolve fully later. The best plan would probably be to have the child studied by a physician with a special knowledge of the speech disorders of childhood.

HYPOTHYROIDISM

To the Editor:—A man, aged 30, is unable to concentrate properly, lacks initiative, and is forgetful, sluggish of mind and backward. Would thyroid treatment be of benefit to him? What line of treatment would you suggest in this case? Please omit name.

M.D., Illinois.

Answer.—While this patient may be deficient in thyroid, a study of the basal metabolism is necessary before making a diagnosis of hypothyroidism. In the event that the metabolism is found to be low, thyroid will probably be of considerable benefit. The dosage cannot be ascertained except by the method of careful investigation of each patient. It is well known that one-half grain (0.03 Gm.) of thyroid three times a day is usually a safe and small dose, although it may be too big for some patients. However, it is usually a good starting point, the dose to be increased or diminished according to the reaction of the patient.

If there is no metabolic evidence of thyroid disease, the patient can still be given small doses of thyroid, but one would suggest that an examination of the mentality of the patient might be of considerable value.

BITES BY APHIS LION

To the Editor:—A prolonged drought, as a disturbance, digs deep into the daily web of life. The aphis lion (*Chrysopidae*) usually finds aphides enough and to spare; but not this dry year. As a result, he turned to anything bearing blood and I have known of six or more bites this summer. About the first week in August, sitting under a large white oak tree in my yard, I felt a sharp bite on the wrist and looked to find, to me, a new form of insect sinking his "beak" into the flexor aspect of my wrist so vigorously and with such manifest enjoyment that I became more interested than angry. He was a yellowish, spotted, canoe-shaped larva of some kind about 5 or 6 mm. long, with a pair of long curved, almost parallel mandibles, now covered with blood, with which he was tearing the flesh. Some movement of mine made him move about an inch away, where he started again, nothing daunted. The pain was more like a bite than a sting, but the after-results indicated some new and novel toxin. Interested, I let him suck his fill at the second site, and then I bottled him for identification—with the result mentioned. An hour later there was an intense burning pain, worse than any mosquito bite, with an areola an inch or more in diameter around the first bite and almost none around the second, showing seemingly a mosquito-like initial injection of some anticlotting globulin. The next day the two were equally inflamed and almost purpuric in tint. It was not until the fourth day that the inflammation began to decline. Two friends who saw the "bug" had experiences almost as bad, and one or two others who visited me had "strange bites" of untoward severity. Has this experience been found elsewhere? I am anxious to know.

P. B. Barringer, M.D., University, Va.

Answer.—A careful search of the modern textbooks of medical entomology and the most promising current literature in entomology fails to reveal any published cases in which the aphis lion (*Chrysopidae*) has bitten man. In spite of this, however, several American entomologists on personal inquiry note that they have been bitten by these insects. From their experience this seems to be the usual result if the insect is given the opportunity.

SENSES OF SMELL AND TASTE

To the Editor:—I have a friend, a man of intelligence and university training, a horticulturist, whose nasal structures, including the skin, mucosa and cartilage, were completely destroyed fifteen years ago by tuberculosis and subsequent roentgen burns. All lesions are now completely healed but the patient is entirely lacking in the sense of smell, which, he says, was unusually keen prior to his illness. He has tested himself with a number of things, notably hydrogen sulphide, ammonia and garlic, and from these he receives no aroma sense whatever, though he says that the two latter substances cause a burning sensation within the nasopharynx. *In spite of his deformity, he tells me that his sense of taste is in no way impaired. He can appreciate the flavors of all foods* and drinks as well as ever and he is very particular about his brand of smoking tobacco. I would appreciate any comments you might make on this case since I had always understood that the so-called taste of things—with the exception of salt, sweet, bitter, sour—was dependent on the sense of smell.

Greenshaw-Mandel, M.C., Morelos, Mexico.

Answer.—On the basis of what is known today, it is not quite correct to say that the sense of taste is dependent on the sense of smell. These two senses have separate peripheral end organs in specific regions of the nasal mucous membrane and specific regions in the mucous membrane of the tongue and the pharynx. They have separate conduction paths to the brain *and they have in all probability geographically distinct areas* in the cerebral cortex for conscious elaboration of the afferent impulses. But in the normal individual with both of these senses intact and functioning there are in many cases both fusion and confusion of these senses in consciousness developed apparently because of the fact that substances that give taste also contain volatile elements that give rise to the sense of smell. It is a common experience that persons with head colds, and therefore with edema of the nasal mucous membrane interfering with the free passage of the air to the olfactory regions of this membrane, and decreased sensitiveness of the olfactory cells themselves, frequently report a change in or an absence of taste in foods or drinks ingested. These are acute conditions and the statement of absense of taste is exaggerated. If such a condition becomes chronic, the individual would ultimately learn to recognize the taste sense per se. In other words, it appears that fusion and confusion of taste and smell is a matter of individual experience and this condition usually persists through life, but it is possible to differentiate this fusion and confusion by reeducation. Therefore there is nothing extraordinary in the case described, especially when it is remembered that the man is comparing his present taste of things with what he remembers of the taste of the same things before the destruction of the nasal membranes. Comparison of such memories is never accurate. In most people it would seem that the biggest factor in the choice of a brand of smoking tobacco depends on odor rather than taste, except for such elements as a burning sensation in the mouth produced by some brands of tobacco. It is difficult to determine the actual basis for the subject's choice of tobacco in the total absence of smell. It may be experience prior to his loss of the sense of smell. It may be the experience of others. It may be advertising. But it must be admitted that a thorough study of the taste sense in intelligent persons with prolonged absence of the sense of smell has not been made.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 12, 1931. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery, Ala.

Arizona: Phoenix, Jan. 6-7, 1931. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

Colorado: Denver, Jan. 6, 1931. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

Delaware: Wilmington, Homeopathic, Dec. 16-18, 1930. Reciprocity, Dec 16, 1930. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington, Del.

Dist. Columbia: Basic Science, probably Dec. 28, 1930. Regular, Jan. 12, 1931. Washington, D. C. Sec., Dr. W. C. Fowler, District Bldg., Washington, D. C.

Illinois: Springfield, Jan. 13-15, 1931. Supt., Mr. P. B. Johnson, Dept. of Registration and Education, Springfield, Ill.

Minnesota: Minneapolis, Jan. 6-7, 1931. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., Minneapolis, Minn. Regular, Minneapolis, Jan. 20-22, 1931. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., Minneapolis, Minn.

New York: Albany, New York City, Syracuse and Buffalo, Jan. 26-29, 1931. Chief, Mr. H. J. Hamilton, Albany, N. Y.

North Dakota: Grand Forks, Jan. 6-9, 1931. Sec., Dr. G. N. Williamson, Grand Forks, N. D.

Oregon: Portland, Jan. 6-8, 1931. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland, Ore.

Pennsylvania: Philadelphia, Jan. 6-10, 1931. Sec., Mr. C. D. Koch, Harrisburg, Pa.

Rhode Island: Providence, Dec. 30-31, 1930. Dir., Mr. L. A. Round, Room 319 State Office Bldg., Providence, R. I.

Utah: Salt Lake City, Dec. 15 and 16, 1930. Dir., Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City, Utah.

Washington: Seattle, Basic Science, Jan. 8-9, 1931. Regular, Jan. 12-13, 1931. Dir., Mr. Charles Maybury, Olympia, Wash.

Wisconsin: Regular, Madison, Jan. 13-15, 1931. Sec., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

Missouri June Examination

Dr. James Stewart, secretary of the Board of Health of Missouri, reports the written examination held at St. Louis, June 11-13, 1930. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and forty-nine candidates were examined and passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
Howard University School of Medicine	(1929)	81.2, 85.6
Northwestern University Medical School	(1930)	85.5
Rush Medical College	(1930)	85.5
State University of Iowa College of Medicine	(1930)	81.5
University of Kansas School of Medicine	(1930)	82.3, 86.6, 87.1
University of Michigan Medical School	(1929)	85.5
St Louis University School of Medicine	(1929)	79.1, 80.1, 83.8, 84.1, 84.2, 85, (1930) 79.8, 80.5, 80.7, 81.5, 82, 82.1, 82.2, 82.4, 82.5, 82.6, 82.7, 82.7, 82.8, 82.8, 83, 83, 83, 83.2, 83.2, 83.2, 83.2, 83.5, 83.6, 83.7, 83.8, 83.8, 83.8, 83.9, 84.1, 84.1, 84.2, 84.2, 84.2, 84.2, 84.4, 84.5, 84.5, 84.6, 84.9, 85, 85, 85.1, 85.1, 85.3, 85.3, 85.4, 85.4, 85.4, 85.5, 85.7, 85.9, 86.1, 86.1, 86.1, 86.2, 86.5, 86.7, 86.8, 87.1, 87.3, 87.9, 88.2, 88.4
Washington University School of Medicine	(1926)	85.3, (1928) 84.9, (1929) 80.8, 81.7, 82.8, 84.1, 84.3, 85.1, 86.7, 86.9, 88.3, 89.1, 96.3, (1930) 82.2, 82.9, 83, 83, 83.2, 83.3, 83.4, 83.7, 83.7, 83.8, 84, 84.2, 84.3, 84.5, 84.8, 85, 85, 85.1, 85.1, 85.2, 85.4, 85.4, 85.4, 85.5, 85.6, 85.7, 85.7, 85.7, 85.9, 86, 86.1, 86.2, 86.3, 86.4, 86.5, 86.5, 86.6, 86.8, 86.8, 87, 87.1, 87.5, 87.5, 87.5, 87.7, 88.4, 89.2, 89.5, 89.7, 90, 90.2
Creighton University School of Medicine	(1930)	81.8
University of Pennsylvania School of Medicine	(1928)	82.2
Meharry Medical College	(1929)	79.1
University of Tennessee College of Medicine	(1930)	83.7
Marquette University School of Medicine	(1930)	85.8
University of Wisconsin Medical School	(1929)	80.3
Dragomanov Institute, Kiev	(1922)	75 *

* Verification of graduation in process.

Dr. Stewart also reports 35 physicians licensed through reciprocity with other states and 8 by the endorsement of credentials, from Jan. 1 to July 30, 1930. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1929)	Arkansas
Emory University School of Medicine	(1921)	Georgia
Chicago Medical College	(1927)	Illinois
Loyola University School of Medicine	(1916)	Illinois
Northwestern University Medical School	(1906) (1920)	Illinois
State Univ. of Iowa College of Med.	(1923) (1928) (1929)	Iowa
University of Louisville School of Medicine	(1929)	Kentucky
Univ. of Kansas Sch. of Med.	(1925) (1927) (1928-2) (1929)	Kansas
University of Michigan Med. Coll.	(1914) Michigan, (1926)	Minnesota
University of Minnesota Medical School	(1928)	Minnesota
Barnes Medical College	(1910)	Arkansas
Washington University School of Medicine	(1927)	Illinois
Creighton University School of Medicine	(1924) (1926)	Kansas
University of Nebraska College of Medicine	(1924) (1926)	Nebraska
University of Buffalo School of Medicine	(1911)	New York
Jefferson Medical College	(1927)	Penna
University of Pennsylvania School of Medicine	(1928)	Kansas
Meharry Medical College	(1909) Georgia, (1928) (1929)	Tennessee
University of Tennessee College of Medicine	(1912) (1927) (1929)	Arkansas Tennessee
Marquette University School of Medicine	(1929)	Michigan
Baylor University College of Medicine	(1925)	Texas

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement of
Rush Medical College	(1928)	N. B. M. Ex.
Washington University School of Medicine	(1927-3) (1928)	N. B. M. Ex.
University of Nebraska College of Medicine	(1928)	N. B. M. Ex.
Cornell University Medical College	(1926)	N. B. M. Ex.
Western Reserve University School of Medicine	(1923)	N. B. M. Ex.

Utah June and July Examination

Mr. S. W. Golding, director of the Department of Registration of Utah, reports the written examination held at Salt Lake City, June 30 and July 1, 1930. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Six candidates were examined and passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
Northwestern University Medical School	(1930)	88
Creighton University School of Medicine	(1929) 83, (1930)	85 *
Syracuse University College of Medicine	(1929)	82
University of Pennsylvania School of Medicine	(1929)	88
University of Wisconsin Medical School	(1929)	80

Mr. Golding also reports 4 physicians licensed through reciprocity with other states at the same meeting. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
State University of Iowa College of Medicine	(1928) (1929)	Iowa
University of Louisville School of Medicine	(1880)	Missouri
University of Tennessee College of Medicine	(1929)	Tennessee

* Certificate to practice will not be granted until after completion of internship.

Ohio June Examination

Dr. H. M. Platter, secretary of the State Medical Board of Ohio, reports the oral, written and practical examination held at Columbus, June 9-12, 1930. The examination covered 10 subjects and included 85 questions. An average of 75 per cent was required to pass. One hundred and ninety-eight candidates were examined, 197 of whom passed and 1 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent
George Washington Univ. Med. School	(1929) 82.9, (1930)	87.2
Howard University School of Medicine	(1929)	86.4
[illegible] of Medicine	(1930)	85.3
[illegible] Medical School	(1930)	82.9,* 89.1
[illegible] College of Medicine	(1930)	84.1
University of Maryland School of Medicine	(1929)	81.2, 84.9
Harvard University Medical School	(1929)	86.9
St. Louis University School of Medicine	(1929)	78.9, 90.2, (1930) 84, 84.1, 84.4, 85.9, 86.4, 87.7, 91.5
Creighton University School of Medicine	(1929)	85.1
Ohio State University College of Medicine	(1930)	80.3, 80.8, 81.1, 81.5, 82.2, 82.4, 82.5, 82.6, 83.1, 83.2, 83.4, 83.4, 83.7, 83.8, 84, 84, 84.1, 84.1, 84.1, 84.2, 84.2, 84.5, 84.6, 84.7, 84.7, 84.7, 84.8, 84.9, 85.1, 85.1, 85.3, 85.3, 85.4, 85.5, 85.7, 85.8, 86.3, 86.4, 86.5, 86.6, 86.8, 86.8, 87, 87.2, 87.2, 87.3, 87.6, 87.7, 88.2, 88.4, 88.4, 88.4, 88.5, 88.9, 89, 89
University of Cincinnati College of Medicine	(1929)	88.8, (1930) 78.2,* 79.8,* 80.3,* 80.4,* 81,* 81.3,* 81.5,* 81.6,* 81.7,* 82,* 82.2,* 82.3,* 83,* 83.1,* 83.1,* 83.1,* 83.2,* 83.3,* 83.4,* 83.5,* 83.6,* 83.7,* 83.7,* 83.8,* 83.8,* 83.8,* 83.9,* 83.9,* 84,* 84.4,* 84.4,* 84.4*, 84.5,* 84.6,* 84.6,* 84.8,* 84.9,* 84.9,* 85.2,* 85.2,* 85.3,* 85.5, 85.5,* 85.8,* 85.9,* 86.1,* 86.1,* 86.3,* 86.3,* 86.4,* 86.6,* 87.7,* 87.8,* 88.6 *

Western Reserve University School of Medicine	(1930)	79, 81.7, 82.4, 82.5, 82.6, 82.8, 82.8, 82.9, 83, 83.5, 83.8, 83.8, 83.9, 84, 84, 84.1, 84.1, 84.5, 84.5, 84.6, 84.6, 84.7, 84.9, 85, 85.1, 85.1, 85.2, 85.3, 85.4, 85.5, 85.5, 85.7, 85.7, 85.8, 85.8, 85.9, 85.9, 86, 86, 86.8, 87.2, 87.3, 87.7, 87.9, 88.1, 88.4, 89, 90.2, 90.3
University of Oregon Medical School	(1929)	85.5
Hahnemann Medical College of Philadelphia	(1929)	88.1
Jefferson Medical College	(1928) 82.4, (1930) 85, 85.6, 86.3,	88.1
University of Pennsylvania School of Medicine	(1929)	90.3
Baylor University College of Medicine	(1930)	81.3
University of Wisconsin Medical School	(1927) 85.3, (1929)	86.3
University of Montreal Faculty of Medicine	(1925)	78.4
University of Toronto Faculty of Med.	(1926) 82.9, 84.1, (1927) 83.7,	88.3
University of Edinburgh Faculty of Medicine	(1923)	82.1

College FAILED	Year Grad.	Per Cent
University of Athens Faculty of Medicine	(1917)	59.2

Dr. Platter also reports that two candidates were examined and passed in December, 1929. The two following colleges were represented:

College PASSED	Year Grad.	Per Cent
Loyola Univerity School of Medicine	(1930)	83.8
Rush Medical College	(1930)	84

* This applicant has received an M.B. degree and will receive an M.D. degree on completion of one year's internship in a hospital.

North Carolina June Examination

Dr. John W. MacConnell, secretary of the Board of Medical Examiners of North Carolina, reports the written examination held at Raleigh, June 16, 1930. The examination covered 16 subjects and included 70 questions. An average of 80 per cent was required to pass. Ninety candidates were examined, 85 of whom passed and 5 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine	(1929)	86
Emory University School of Medicine	(1929) 85.6, (1930)	89.7
Rush Medical College	(1930)	87.9*
University of Louisville School of Medicine	(1930)	85.9
Tulane University of Louisiana School of Medicine	(1930)	85.1, 86.7, 87.7, 88.7, 90.7, 92.4, 94
Johns Hopkins University School of Medicine	(1924)	91.4 (1929) 85.1, (1930) 91.2
University of Maryland School of Medicine	(1930)	82, 82.7, 84.7, 87.4, 87.4, 87.7, 88.1, 88.7, 89.7, 89.9, 91.2
University of Minnesota Medical School	(1929)	89.7
Washington University School of Medicine	(1930) 86.4, 89.1,	89 6
Columbia University College of Phys. and Surgs	(1930)	84.7
Syracuse University College of Medicine	(1930) 82.6,	86.2
University and Bellevue Hospital Medical College	(1930)	85.2
Leonard Medical School	(1912)	80
University of Cincinnati College of Medicine	(1930)	86.1†
Jefferson Medical College	(1930)	81.1, 81.7, 84, 85.2, 85.7, 88.5, 88.9, 89.7, 91.1, 91.4
University of Pennsylvania School of Medicine	(1927)	89.6, (1930) 85.6, 86.1, 87, 87.7, 89.6, 89.6, 90.7, 90.7, 90.7, 91.2, 91.9, 91.9, 92.6
Medical College of the State of South Carolina	(1930)	82.5
Meharry Medical College	(1928) 80.2, (1929) 85.2,	85.2
Vanderbilt University School of Medicine	(1929)	86.2
Medical College of Virginia	(1929) 82.2,	86.4, (1930) 81.9, 82.4, 82.7, 82.9, 83.2, 83.7, 84, 84.4, 84.6, 85.1, 85.1, 85.4, 86, 86.9, 87.1
University of Virginia Department of Medicine	(1928)	85.7, (1929) 86.9, 88.2

College FAILED	Year Grad.	Per Cent
University of Louisville School of Medicine	(1930)	78.2
Meharry Medical College	(1927) 71.1, (1928) 75.7, (1929)	77
Medical College of Virginia	(1930)	77

Dr. MacConnell also reports 16 physicians licensed through reciprocity with other states and 2 by the endorsement of credentials at the same meeting. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists	(1927)	Florida
University of Georgia Medical Department	(1900)	S. Carolina
Rush Medical College	(1927)	Illinois
Indiana University School of Medicine	(1926)	Indiana
Tulane University of Louisiana School of Medicine	(1926)	Alabama
Johns Hopkins University School of Medicine	(1926)	Maryland
University of Maryland School of Medicine	(1915)	Maryland
Jefferson Medical College	(1890)	Virginia
University of Pennsylvania School of Medicine	(1914)	Penna.
	(1926)	Maryland
Medical College of the State of South Carolina	(1925)	S. Carolina
Meharry Medical College	(1927)	Tennessee
Memphis Hospital Medical College	(1912)	Florida
Baylor University College of Medicine	(1924) (1927)	Texas
University of Texas School of Medicine	(1915)	Texas

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine	(1923)	N. B. M. Ex.
University of Virginia Department of Medicine	(1926)	N. B. M. Ex.

* This applicant has received a four-year certificate and will receive his M.D. degree on completion of one year's internship in a hospital.

† This applicant has received his M.B. degree and will receive his M.D. degree on completion of one year's internship in a hospital.

Book Notices

Chronic Nasal Sinusitis and Its Relation to General Medicine: Based on the Author's Semon Lecture, University of London. The Toll of Nasal Focal Sepsis on Body and Mind. By Patrick Watson-Williams, Hon. Consulting Surgeon in Diseases of the Ear, Nose, and Throat, Bristol Royal Infirmary. Cloth. Price, $5. Pp. 221, with 109 illustrations. New York: William Wood & Company, 1930.

The author of this work is one of the best known English laryngologists who has contributed many excellent articles on rhinology and allied subjects. In this monograph much of the space is devoted to the subject of focal sepsis, or focal infections. Beginning with an historical survey of toxemia, bacteremia and selective affinities of organisms and toxins, the pathways of invasion, and the general symptoms and signs of focal sepsis, there is a discussion in considerable detail of complications involving the respiratory and intestinal tracts, the heart, the joints, the skin and the eyes. The author is more imbued with the firm belief that focal infection, or sepsis, as he terms it, is the cause of general conditions than is at present perhaps the tendency of physicians in America. Some years ago focal infections were used to explain the causation of almost every painful inflammatory condition in the body. The present enthusiasm regarding this is no longer so marked. The second part of the work deals with diagnostic measures, such as endorhinoscopy, transillumination and radiography. The author's main thesis is diagnostic exploratory suction of the nasal sinuses, the method he has employed for many years and on which he is able to base his diagnosis regarding the presence and the character of infections. Based on the results he has obtained, he has outlined his method of treatment. He advises and urges conservative measures, including diets and hygiene whenever possible. When operations are necessary, he prefers intranasal work at first. The illustrations are good, the author's style is clear, and the book is readable. One cannot perhaps quite agree with the author that definite focal infections are always present or give definite diagnostic signs in all cases; but since he is on the whole fairly conservative, the perusal of the monograph should be both interesting and instructive to rhinologists. Full credit is given in most instances to the many men who have studied the subject and contributed to the literature of chronic nasal sinusitis.

Experimentelle Bidrag til Spørgsmaalet om Hypophysens Livsvigtighed. Af Svend Felding, Reservelæge ved Frederiksberg Hospital. Paper. Pp. 120, with illustrations. Copenhagen: Levin & Munksgaard, 1929.

This is a thesis submitted as part of the requirements for the degree of doctor of medicine from the University of Copenhagen. In addition to discussing the anatomy and physiology of the hypophyseal region, the author stresses particularly the vital significance, as determined by extirpation and destruction, of the part of the tuber or infundibulum that forms the floor of the third ventricle. Within a period varying from a few hours to a few days after the removal of this part there develops in the dog apathy, somnolence, coma and death. The mechanism of death under these circumstances requires further investigation. The results described in this thesis may have a bearing on the methods and results of operations for hypophyseal and brain tumors.

Diathermy Medical and Surgical in Oto-Laryngology. By Dan McKenzie, M.D., F R.C.S.E., Consulting Surgeon, Central London Throat and Ear Hospital. Cloth. Price, $4. Pp. 184, with 23 illustrations. New York: Macmillan Company, 1930.

The first chapter of this monograph is devoted to the physics and mechanics of diathermy current and apparatus. The subject of medical diathermy is next discussed and emphasis is laid not merely on the indications but also on the contraindications to its use. In several sections the ear, nose and throat are considered in relation to treatments by means of medical diathermy It is refreshing to note that McKenzie is quite conservative in his statements regarding the benefits to be derived from the use of this measure in the various middle ear conditions. So many writers have been overenthusiastic with reference to the reduction of tinnitus and the improvement of hearing by means of diathermy that it is gratifying to note that the author does not make extravagant claims. Surgical diathermy is given considerable credit and deservedly so, since it has found extensive application in otolaryngology, particularly in the pharynx and larynx. In the removal of tonsils and especially stumps left over from previous operations, surgical diathermy has had rather wide use. Both in the benign and in the malignant diseases of the larynx it is considerably employed, and the methods are here described in detail, particularly with reference to destruction of malignant disease after laryngofissure. The last portion of the book is devoted to the treatment of ineradicable cancers. This work constitutes one of the volumes in the Anglo-French Library of Medical and Biological Science and should prove valuable to any one who desires a clear and sane exposition of diathermy and its relations to otolaryngology. The author writes in a lucid, succinct style, and the illustrations further clarify the subject.

Handbuch der Kindertuberkulose. Band II. Herausgegeben von Prof Dr Stefan Engel und Prof. Dr. Cl. Pirquet. Paper. Price, 120 marks. Pp. 887-1591, with 170 illustrations. Leipzig: Georg Thieme, 1930.

The first volume of this collection of monographs on the various phases of childhood tuberculosis was reviewed in The Journal, June 28. The articles contained in volume II maintain the general standard of excellence noted in the review of the first volume. Practically every phase of the subject receives careful and critical consideration. The scope of the volume is too extensive for detailed review. The contributors are for the most part renowned authorities in Germany and Austria, though French, American, Swedish and Swiss investigators have written for this volume. There is a chapter on tuberculin diagnosis with a consideration of reactions and their significance, and a discussion relating to the sensitization of the organism to tuberculin. Herbert Orel, who writes on this subject, states that it would be desirable to give every child a tuberculin test during early life so as to ascertain whether or not an infection has taken place.

In considering prognosis it is observed that, in view of the large number of children who are infected, a relatively small proportion succumb. Nevertheless, prognosis is obviously modified by a number of factors, among which are mentioned the virulence of the organism, the reaction of the infected individual, environmental influences, the state of nutrition, and economic conditions. While it is generally thought that the so-called occult tuberculosis presents a favorable prognosis, nevertheless it does not confer absolute immunity. Children thus infected are later on subject to superinfection and reinfection. It has been observed that some of these infected children develop a fatal, rapidly progressing form of pulmonary tuberculosis in the period from the fifteenth to the twentieth year of life. Childhood tuberculosis and phthisiogenesis are considered in relation to tuberculosis in later life. Behring's well known aphorism is stressed, to the refrain: "Adult phthisis is the end of the song which was begun in the cradle."

Prophylaxis receives the careful attention it deserves and is considered under the various divisions, prevention of exposure to infection, constitutional tendencies, and various forms and methods of active immunization. Nobel, who contributes the article on active immunization, concludes a thoughtful presentation of the subject by epitomizing our knowledge of tuberculosis immunization at the present time. He thinks that final judgment should be deferred because the whole question is still in the experimental stage. Nevertheless, "primum nil nocere" should be the first commandment in prophylaxis as well as in active treatment. The treatment of tuberculosis is discussed from every angle. The general treatment, the nutrition, the use of drugs in the treatment of symptoms, the value of sea climate, the mountain resorts, and surgical and orthopedic procedures are considered in interesting and detailed form. Tuberculin therapy also receives attention. The technic of administration, indications and contraindications are fully presented, and it is maintained that if the proper method is employed, the dosage carefully controlled and suitable cases selected, the treatment may help considerably and do no harm.

This volume completes the treatise on childhood tuberculosis. The work contains a wealth of material and is encyclopedic in character. Nothing seems to have escaped the attention of the editors and collaborators, and any one who is seeking information on any matter, new or old, relating to tuberculosis of childhood will find it contained in these volumes. The illustrious career of Pirquet began with his valuable contributions to the study of tuberculosis. Shortly following his death this monumental contribution of Engel and Pirquet was published and should serve as a fitting memorial to a great scientist.

Handbook of Therapeutics. By David Campbell, M.D., M.A., B.Sc, "Pollok" Lecturer in Materia Medica and Pharmacology in the University of Glasgow. Leatherette. Price, $4.50 net. Pp. 411, with 72 illustrations. New York: William Wood & Company, 1930.

That insufficiency in the teaching of therapeutics is an international calamity is indicated by testimony from Great Britain. In the preface, Campbell says: "The aim of the medical curriculum is to provide the student with sufficient knowledge to treat disease rationally; yet, as a rule, there is no part of his training with which the young graduate is more dissatisfied. He is taught pharmacology and therapeutics before he has had the opportunity of studying disease; he may even be instructed in therapeutics by one who, though possessing a medical degree, has not himself any experience of the practice of medicine. To some extent, no doubt, this is made good in the clinic, but it is too frequently the case that, when the history and physical signs have been elicited, the diagnosis, differential diagnosis, and prognosis discussed, and the pathologic aspect of the disease fully considered, the all important question of treatment is either ignored or is dealt with in such a perfunctory fashion that the student carries away no clear idea of the method of treating a similar case." The book includes chapters on the management of patients, the prescription, modes of administration of medicines, diet, water, heat and cold, climate and various other physical methods of treatment, the use of biologic products and the treatment of the various groups of diseases arranged in much the same way as in the ordinary textbook on the practice of medicine. Unfortunately, because of the large ground the author aims to cover, he does not go much deeper into therapy than most of these books on practice do, and he treats it in much the same manner. For these reasons, it hardly seems to present the ideal way of meeting the problem indicated by the author in his preface.

Refraction of the Human Eye and Methods of Estimating the Refraction Including a Section on the Fitting of Spectacles and Eye-Glasses. By James Thorington, A.M., M.D. Second edition. Cloth. Price, $3 net. Pp. 406, with 323 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1930.

In this well known book, all the tests applicable to various methods and instruments used in refraction are given in detail and well explained. The chapter on muscles deals chiefly with phorias, paralysis of the eye muscles being only enumerated. The author describes his own method of exercising ocular muscles. The book is a satisfactory outline of refraction and should be as well received as the first edition.

The Fourth Factor in the Etiology of Malaria: Its Relation with Anopheles and Its Particular Application to Malaria in Bengal. By Dr. P. C. Roy. Paper. Price, 5/-. Pp. 41. Bengal, 1930.

The author's somewhat startling thesis is that the basic etiologic factor in the occurrence of malaria is the presence of an aquatic plant, *Pistia* (called water-lettuce in English). He tries to show that in Bengal every area having this plant suffers from malaria and every area without it is free from the disease. Furthermore, he asserts that he has been able to control malaria by removing *Pistia* and to introduce the disease into new areas by introducing the plant. The basic cause of the relation of *Pistia* to malaria is supposed to lie in the fact that the plant contains many needle-like crystals which are eaten by *Anopheles* larvae and which so damage the gut wall that later when the adult feeds on infected human blood the ookinetes of *Plasmodium* can penetrate the stomach wall and infect the mosquito. Many obvious objections can be raised to the author's conclusions and hypotheses. In particular one wonders why the ookinetes of bird malaria, which are so similar to the human parasites, can penetrate the gut wall of the culicine mosquitoes without the advantage of the needles of *Pistia*. Besides scientific objections, the work is marred by its obvious polemic character in attempting to discount the work of established public health units.

Cancer of the Larynx. By Sir St. Clair Thomson, M.D., F.R.C.F., F.R.C.P., and Lionel Colledge, M.B., F.R.C.S., Surgeon to the Throat Department, St. George's Hospital. Cloth. Price, $7. Pp. 244, with 106 illustrations. New York: Macmillan Company, 1930.

This is an important work. Possibly no one can speak with more authority on the subject of cancer of the larynx than Sir St. Clair Thomson, who has devoted many years to careful, painstaking scientific work. The history and the frequency of laryngeal carcinoma, its pathology, signs and symptoms as well as the diagnosis and prognosis are discussed. One of the most important points is that with reference to the mobility of the vocal cords. It was thought for many years that one of the earliest signs of cancer involving the cords was an impairment of mobility. It is shown by Thomson and others and emphasized by him that this is erroneous and he has demonstrated that often it is a rather late symptom; therefore, a reliance on its early appearance often leads to mistakes in diagnosis until the disease is far advanced. With reference to the actual differential diagnosis the authors call attention to the fact that the most frequent error lies in mistaking laryngeal tuberculosis for carcinoma. It is interesting to note that the statement is made that the first laryngofissure for the removal of carcinoma of the larynx was carried out in America by Gurdon Buck in 1851. The technic of laryngofissure and laryngectomy is described in detail and the various methods are discussed critically. The last chapters of the book are concerned with pharyngotomy together with irradiation and palliative measures in the inoperable cases. As in most English papers and books, the style is clear, and the statements are made in a precise, logical manner. The book is well illustrated and is a valuable contribution. It should be in the hands of every laryngologist who desires to avail himself of the most recent conclusions. Seldom has so much important matter been included in so small a compass.

Radiologische Praktika: Band XII, Teil 1: Normale Anatomie des Kopfes im Röntgenbild [with English, French and Spanish texts]. Von Dr. Karl Goldhamer, Universitäts-Assistent. Paper. Price, 120 marks. Pp. 115, including 30 photographic plates, 30 illustrative schemas and 15 projection diagrams. Leipzig: Georg Thieme, 1930.

This atlas constitutes volume XII of the series of the Practical Treatises of Radiology covering the various portions of the body. Throughout the work from title page to the last plate, every statement is rendered in German, English, French and Spanish. In order that all possible information may be obtained, the films for the plates were made both from the living and from dead material. The plates are all negatives because, the author states, "it is negatives which are mostly used for diagnosis and because combining the interpretation of a negative seen in reflected light it is no doubt less difficult in combining the interpretation of a negative with that of the positive." It is difficult to describe the beauty of this volume. The pictures of the films are exceedingly clear, and on the lower portion of these plates made from the dried skull are sketches showing the exact position of the head with reference to the direction of the rays. Covering each plate is a celluloid leaf or sheet on which are traced in red the features depicted on the plate, together with numbers indicating the various anatomic points. On the opposite page are the legends for these numbers in the four languages. All together, this is a most sumptuous and splendidly .constructed work. If studied by rhinologists, otologists and head surgeons it will prove of immense profit to them. Both the authors and the publisher are to be heartily congratulated on this exquisite contribution to the literature of the anatomy of the head.

Practical Midwifery for Nurses. By Bethel Solomons, M.D., F.R.C.P.I., M.R.I.A., Master, Rotunda Hospital. Cloth. Price, $2.75. Pp. 354, with 136 illustrations. New York: Oxford University Press, 1930.

In Britain nurses are trained as midwives to attend women during pregnancy and in normal labor. This training includes experience in making vaginal examinations as well as external manipulations for diagnosis. Solomons' book, accordingly is much more explicit than American texts in describing the conduct of labor and detailed in just what the nurse-midwife may and may not be called on to do. It is in reality an abbreviated "Tweedy's" which Solomons edited in 1929 and which we reviewed most favorably in these columns a year ago. The text is well illustrated, the print large, and the paper of high grade. In the conduct of labor the nurse is warned to make as few vaginal examinations as possible and is advised to use the method of "external vaginal examination" for determining the progress of the presenting part. This is done by finger pressure in the area between the anus and the coccyx, externally. Apparently this maneuver, little known in this country, has proved satisfactory in midwifery. A splendid short introduction on nursing ethics opens the book; at the end is appended a chapter describing the "Rules of the Central Midwives Board," both of which will be read with profit by American nurses.

History of Haitian Medicine. By Robert P. Parsons, Lieut.-Com., M. C., U. S. N. Foreword by Edward R. Stitt, Rear Admiral, M. C., U. S. N. Cloth. Price, $2.25. Pp. 196, with 21 illustrations. New York: Paul B. Hoeber, 1930.

During the past few years, Haiti has become of great interest to the American public. Not only has the author added another chapter to the colorful history of the turbulent island, but he has outlined an achievement by the U. S. Navy Medical Department that reads like the brilliant work of Gorgas in Panama. Haitian medicine falls into three periods: the French colonial period during the seventeenth and eighteenth centuries, the more or less bizarre period of independence from 1804 to 1915, and the period of American occupation since 1915. The author considers these periods in succession together with enough general history to orient the reader. At the time of the American occupation almost all the inhabitants were affected with yaws, malaria and intestinal parasites, and, of these, yaws was by far the most important. The results of the fight against these infections are little short of marvelous. The final chapter on Haitian physicians is somewhat pessimistic, because the author, although pointing out their fine qualities and their high skill and ability, does not believe that they possess the administrative ability necessary to continue a successful national public health program after the withdrawal of American supervision. Throughout, the book reads like a novel and is to be recommended to all workers interested in preventive medicine.

Some Social Aspects of Mental Hygiene. Edited by Frankwood E. Williams, M D., Medical Director, National Committee for Mental Hygiene, New York City. Paper. Price, $1. Pp. 214. Concord, New Hampshire: The Annals of the American Academy of Political and Social Science, 1930.

This volume is essentially a symposium on the subject, covering the general aspects of mental hygiene in education and in mercantile life, and institutional treatment and community organization. The book is published as a part of the Annals of the American Academy of Political and Social Science. The essays are authoritative, interesting and thereby stimulating to workers in the field that they concern.

A Textbook of Hygiene. By J. R. Currie, M.A., M.D., D.P.H., Professor of Public Health in the University of Glasgow. Cloth. Price, $8.50. Pp. 844, with 110 illustrations. New York: William Wood & Company, 1930.

This volume covers the usual subjects found in textbooks on public health. It is excellently written and sufficiently complete. Its value from the standpoint of American workers is that it contains official acts relating to such subjects as milk, meat, disinfection, port administration, industrial hygiene, nurses' registration, and lodging houses. It is a pleasure to read this well bound, well printed and well illustrated volume.

Manual of Physiology for Students and Practitioners. By H Willoughby Lyle, M.D., B.S., F.R.C.S., Consulting Ophthalmic Surgeon to King's College Hospital, and David de Souza, Physician to Westminster Hospital and Lecturer on Medicine in the Medical School. Third edition Cloth. Price, $5.25. Pp 520, with 138 illustrations. New York Oxford University Press, 1930.

Although this book, because of its concise discussion, has many admirable points, it cannot be recommended to any class of students. Its section on endocrinology is antiquated. Collip's parathyroid extract is not even mentioned, although it has been well established as an important hormone by laboratory tests and clinical results for five or six years. Robertson's tethelin is mentioned, but the work of the past five years on the hypophysis and neighboring regions of the brain (Philip Smith, Evans, Kamm, Teel and others) seems to have completely escaped notice. One surely cannot condone such important omissions in a manual designed for students and practitioners.

Medicolegal

Skill Required of a Naturopath

(Hilgedorf v. Bertschinger (Ore.), 285, P. 819)

The plaintiff recovered a judgment in the circuit court, Multnomah County, against Bertschinger, a naturopath, for malpractice in performing an operation on her for menstrual irregularity and Bertschinger appealed to the Supreme Court of Oregon.

Although the defendant denied, said the Supreme Court, that he had performed an operation on the plaintiff and contended that he used instruments for inspection purposes only, there was ample evidence to take the case to the jury and the trial court committed no error in denying the defendant's motion for a directed verdict.

The defendant contended that a practitioner of the healing art is entitled to have the treatment of his patient tested by the rules and principles of the school of medicine to which he belongs. Consequently, he argued, it was error for the trial court to allow practitioners, other than naturopaths, to testify. It is true, said the court, that if a patient seeks to be treated by a naturopath, and such practitioner follows the methods usually employed by a naturopath, the practitioner is not negligent simply because a physician of another school would have treated the patient for that particular disease by some other method. Where, on the other hand, a naturopath in the treatment of a patient, uses surgical instruments and employs unsterilized lambs' wool for vaginal packing, as the testimony tended to show the defendant did in the present case, then such practitioner is working in the field where a regularly licensed physician and surgeon is qualified to testify. The court quoted from 21 R. C. L., pp. 383, 384 as follows:

> The rule which confines the inquiry as to a practitioner's skill and care to the rules and principles of the school of medicine to which he belongs does not, however, exclude the testimony of physicians of other schools or experts in other lines when that testimony bears on a point as to which the principles of the schools do or should concur, such as the dangers incident to the use of x-rays, or the existence of a condition that should be recognized by any physician, e. g., that the patient's hip joint was dislocated and not affected by disease. . . .

The trial court did not err, therefore, in permitting a physician and surgeon to testify concerning the condition in which he found the patient when he examined and operated on her and concerning whether or not, in his opinion, the treatment administered by the defendant was proper. In *Lehman* v. *Knott*, 100 Ore. 59, 70, 196 P. 476, the court said:

> *In a malpractice case the question whether a physician has in a given* case adopted the proper treatment is one in which the opinions of medical men may be received in evidence, and they may state whether in their opinion the treatment was proper or not, whether it was in conformity with the rules and practice of the profession. Rodgers on Expert Testimony (2d Ed.) § 64.

Finding no error in the record, the judgment of the trial court was affirmed.

Epilepsy and Workmen's Compensation

(Andrews v. L. & S. Amusement Corp. (N. Y.), 170 N. E. 506)

Andrews, while walking on a concrete sidewalk in the course of his employment, had an attack of epilepsy. He fell on the sidewalk and sustained a fatal fracture of the skull. The industrial board awarded compensation to his mother and the award was affirmed by the New York Supreme Court, appellate division. The employer and insurer appealed to the Court of Appeals of New York.

Apparently, said the court, the industrial board in awarding compensation, and the Supreme Court in affirming that award, regarded *Mausert* v. *Albany Builders' Supply Co.*, 250 N. Y. 21, 164 N. E. 729, as determinative. In that case the employee was a teamster and, during the course of his employment, he fell from the seat of his truck to the pavement and was fatally injured. It was held that his death arose out of his employment. The risk of falling from the seat of a truck was incident to and a risk of his employment. Such a risk would not surround him while sitting in a chair or while walking. Again, in *Barath* v. *Arnold Paint Co.*, 238 N. Y. 625, 144 N. E. 918, cited in the Mausert case, the injury resulted from a fall from a scaffold, due to an apoplectic stroke. It was held that the risk or danger was one arising out of the employment, because the loss of control through apoplexy while on a scaffold would result in a serious fall. The place of work increased the risk and danger from such an affliction.

None of these added risks or dangers, due to the employment, are found in the present case, the court said. The employee was walking on the sidewalk when he fell. The risk of falling to the pavement was not due to the employment. The same result might have followed if he had been coming to or going from his employment or if he had been in his own house. If the epileptic stroke itself had killed him there would be no recovery. Had the employee fallen from a ladder, from a scaffold or from a stairway, the chances of injury would have been increased. Had an accident caused his fall there would have been another element in the case, but there was no accident. He fell because of internal disorders, and the resulting injury was not due to any added risk of the employment. The court, therefore, reversed the order of the Supreme Court sustaining the award and dismissed the claim.

Two justices, in a dissenting opinion, said that subjection of the average person to an ordinary risk is no longer one of the tests for determining the question whether or not the injury arises out of the employment. The test is the relation of the services to the injury and of the employment to the risk. The risk need not be one peculiar to the employee nor one from which the general public is exempt. An injury received in the course of employment, said the dissenting justices, does not cease to be one arising out of the employment merely because some infirmity due to disease has originally set in action the final and proximate cause of the injury. A workman carries with him all his disabilities, and the fact that he has them does not destroy his right to compensation. The determining question is: Did the employment require the workman to be in the place where a floor or a walk or other structure caused his injury? The dissenting justices thought the award should be affirmed.

Hospitals: Charitable; Liability not Affected by Indemnity Insurance.—Hospitals administered solely for charity and which do not receive profit from their operation are not liable for the negligence of their physicians and servants, if due care and caution has been exercised in selecting them. An insurance policy issued to a charitable hospital contracting "to indemnify the assured . . . against loss from liability imposed by law upon the insured" indemnifies the hospital only for liability for negligence in its selection of physicians and servants. It creates no right of action either by the hospital or the patient therein against the insurance company, nor does it impose any additional liability on the hospital itself in favor of the patient. A patient may not recover damages, therefore, from a charitable hospital so insured, on an allegation that a roentgenogram of the patient's arm was so negligently taken in the hospital that it failed to disclose a fracture, where no negligence is shown in the selection of the physician who operated the x-ray machine.—*Mississippi Baptist Hospital v. Moore (Miss.), 126 So. 465.*

Society Proceedings

COMING MEETINGS

American Society for the Study of Disorders of Speech, Chicago, December 30-January 1. Dr. Sara M. Stinchfield, Mount Holyoke College, South Hadley, Mass., Secretary.

American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.

American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.

Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

13: 943-1044 (Nov.) 1930

Pigmentary Degeneration of Retina in Cerebrospinal Syphilis. J. S. Friedenwald, Baltimore.—p. 943.
Eye Changes Observed in Paretic Patients After Treatment with Malaria. C. P. Clark, Indianapolis.—p. 946.
Influence of Pregnancy on Visual Field. J. P. Johns, Boston.—p. 956.
Posterior Lenticonus. R. I. Lloyd, New York.—p. 968.
Subtentorial Tumor: Case. C. T. Eber, St. Louis.—p. 974.
Sight-Saving Class Work. E. V. L. Brown, Chicago, and L. H. Carris, New York.—p. 983.
Krukenberg's Spindle. M. H. Post, St. Louis.—p. 987.
Sign in Differential Diagnosis of Lesions Producing Unilateral Exophthalmos. J. Wolff, New York.—p. 989.
Glaucoma from Apical Tooth Abscess. H. H. Levy, New York.—p. 991.
Table of Tonometer Readings. L. L. Mayer, Chicago.—p. 991.

American J. Roentgenol. & Rad. Therapy, New York

24: 349-476 (Oct.) 1930

Roentgenologic Diagnosis of Coarctation of Aorta (Adult Type). W. W. Fray, Rochester, N. Y.—p. 349.
*Amniography. T. O. Menees, J. D. Miller and L. E. Holly, Grand Rapids, Mich.—p. 363.
*Diagnosis of Early Ileocecal Tuberculosis. J. Gershon-Cohen, Philadelphia.—p. 367.
Normal Position of Patella. S. B. Boon-Itt, Bangkok, Siam.—p. 389.
*Results of Roentgen Therapy in 400 Cases of Goiter. G. E. Pfahler and J. H. Vastine, Philadelphia.—p. 395.
*Treatment of Carcinoma of Body of Uterus. W. Neill, Jr., Baltimore.—p. 412.
Detection, Estimation and Elimination of Radium in Living Persons Given Radium Chloride Internally. H. H. Barker, New York and H. Schlundt, Columbia, Mo.—p. 418.
*Thyroglossal Duct Cyst and Sinus. P. O. Snoke, Lancaster, Pa.—p. 424.
Syphilitic Infection of Lung: Case. H. J. Hutter, Hot Springs National Park, Ark.—p. 427.
Right-Sided Relaxation of Diaphragm: Case. H. Fritsch, Bielitz, Polen.—p. 430.

Amniography.—Obstetric roentgenography has been limited almost entirely to a demonstration of the fetal bones and uterine contour. Occasionally, when the subcutaneous fat of the fetus is unusually thick, the outline of an extremity is obtained. The slight difference in density of fat and liquor amnii is sufficient to cast a shadow. This suggested an artificial increase in density of the amniotic fluid to give contrast to fetal soft parts and placenta. Amniography is proposed by Menees et al. as a name for this procedure, differentiating it from uterography, the roentgenography of the nonpregnant uterus. This contrast is obtained by the injection of a 1 : 1 solution of strontium iodide through the anterior abdominal wall. The actual concentration is about 0.75 Gm. per cubic centimeter, as strontium iodide contains six molecules of water of crystallization. After the skin has been anesthetized with procaine hydrochloride, a small flexible lumbar puncture needle is passed into the amniotic cavity, usually below the umbilicus and near the median line. The puncture is made on the side with the fetal small parts. After fluid has been obtained through the needle, the injection is made slowly with frequent withdrawals of amniotic fluid to dilute the solution. Following injection, it is advisable to wait from half an hour to an hour before taking the films, to permit an even diffusion throughout the amniotic cavity. During this time the patient changes position frequently to assist in the mixing. The exposures are made on a Potter-Bucky diaphragm, a high milliamperage and relatively low voltage being used to insure a maximum contrast. The correct amount of solution to inject varies with the quantity of liquor amnii present and this is almost impossible to determine in advance If too much solution is injected, the whole interior of the uterus will become opaque and the object of the examination will be defeated. From 7.5 to 15 cc. of the solution has been used by the authors. The larger amounts caused too much opacity and probably 9 or 10 cc. will be sufficient for the average case in the latter months of pregnancy. In the twenty-one cases in which injection has been done there have been no injurious or toxic effects to the mother or fetus in normal pregnancies. In a case of placenta praevia at the sixth month, the fetus made a few feeble attempts at respiration. The placenta showed a partial separation. It was located low on the anterior wall and may have been perforated in the injection. The pulsating cord excluded any toxic effect to the fetus.

Diagnosis of Early Ileocecal Tuberculosis.—Ileocolography, with a double contrast air-barium enema, was employed by Gershon-Cohen in the study of ileocecal tuberculosis, in conjunction with and after a single contrast enema and an intermediary examination. These examinations were more valuable than either the single contrast enema or the serial roentgenographic studies of Brown and Sampson alone because they not only furnish an equivalent of the spasms, hyperperistalsis and hypermobility, anastalsis, with "filling defects," on which the diagnosis of early ileocecal tuberculosis is based in the serial examinations, but also manifest these equivalents earlier and more definitely. Many new phenomena are seen only in the double contrast roentgenograms, making possible a better concept of the tuberculous processes, their extent and intensity. The enema studies are self-sufficient in making the diagnosis in all stages of ileocecal tuberculosis, allowing checks to be made on all the observations. They are made with greater dispatch and less annoyance to the patient and require fewer exposures than the serial examinations.

Results of Roentgen Therapy in Goiter.—Observations made by Pfahler and Vastine and those of other roentgenologists in treating rather large series of cases of hyperthyroidism lead them to conclude that roentgen therapy offers as great prospects of cure or marked improvement as can be obtained by any other known means. In cases causing pressure or embarrassment of respiration, surgery is indicated. In nontoxic cases, they recommend surgical or medical treatment depending on the type. When medical treatment fails and surgery is refused in these nontoxic cases, several small series of treatments may be given, with little danger of impairment of the normal function of the gland.

Treatment of Carcinoma of Body of Uterus.—Taking all groups treated by Neill prior to five years ago, there were 109 cases; 76 patients have died—counting 6 patients lost sight of as dead—and 33 are living, making a total five year cure rate of 33 per cent. He says that, in operable carcinoma of the body of the uterus, radium offers a method of treatment comparable to surgery. It obviates the primary mortality and can be used safely in those presenting bad surgical risks. Radium offers the possibility of a cure and definite palliation in a number of inoperable and recurrent cases. When there is any doubt as to the extent of the disease, operation alone or combined with radium is the treatment of choice.

Thyroglossal Duct Cyst and Sinus.—A case of thyroglossal duct sinus is presented by Snoke in which the lateral anlage ducts are believed to have persisted rather than the usual median duct. Roentgen demonstration was made possible by the use of a ureteral catheter and iodized oil.

American Review of Tuberculosis, Baltimore

22: 467-570 (Nov.) 1930

*Chemical View of Pathogenesis of Tuberculosis. E. R. Long, Chicago.—p. 467.
Subacute and Chronic Pulmonary Infections Commonly Mistaken for Pulmonary Tuberculosis H. J. Morgan, Nashville, Tenn.—p. 491.
Action of Musculi Intercartilaginei. J. R. Head, Chicago.—p. 497
*Intracerebral Method with Other Methods of Inoculating Guinea-Pigs for Diagnosis of Tuberculosis. T. B. Magath and W. H. Feldman, Rochester, Minn.—p. 514.
Localized Pneumothoraces as Cause of Annular Shadows in Roentgenograms of Chest. W. P. Warner, Toronto, Canada.—p. 531.
*Complement Fixation Test in Tuberculosis. A. B. Wadsworth, E. J. Maltaner and B. S. Stevens, Albany, N. Y.—p. 539
Temperature and Associated Serum Changes in Tuberculous Patient. K. Reuter and W. F. Petersen, Chicago.—p. 549
Red-Cell Sedimentation and Schilling's Differential Leukocyte Count. A. L. Briskman, Colorado Springs, Colo.—p. 562.
Ammonium Malate as Source of Nitrogen for Tubercle Bacilli in Cultures. R. R. Henley and P. W. Le Duc, Washington, D. C.—p. 564.

Chemical View of Pathogenesis of Tuberculosis.—Long feels that there is some reason for believing that the epithelioid cells of a tubercle, brought there through an allergic response, and increased in their hypersensitiveness by intimate contact with the developing micro-organism, may become increasingly incompatible chemically for the life of the bacillus within their protoplasm.

Intracerebral Method of Inoculating Guinea-Pigs for Diagnosis of Tuberculosis.—An experimental study was made by Magath and Feldman in an attempt to evaluate the reliability of the method of intracerebral injection in determining positive tuberculous infection from clinical material that was negative to careful microscopic examinations. The material consisted of 211 specimens, representing 153 persons. For the purpose of comparison, use was made of the results obtained in the guinea-pigs that had been given routine subcutaneous and intraperitoneal injection with portions of the same material. Nearly three times as many positive results were revealed by the routine method as by the intracerebral method. The difference was probably not due to the intracerebral exposure being a less sensitive one. It could perhaps be accounted for by the difference in the amount of infective material possible to inject in the two groups of animals. Also, however, the result could have been due to the large number of animals given intracerebral injection which died before a demonstrable tuberculous infection had had time to develop; this factor constitutes the most serious objection to the use of the intracerebral method for determining tuberculous infections of clinical origin. Although the method might be of value as an auxiliary procedure in selected cases, it cannot be offered as the method of preference in the diagnosis of tuberculosis by inoculation of animals. It has, however, unquestionable merit as a means of inducing the disease in certain studies on experimental tuberculosis. Injection of one guinea-pig subcutaneously and of another intraperitoneally, with suspected tuberculous material, makes a satisfactory routine method in tests for this disease in which animals are used.

Complement Fixation Test in Tuberculosis.—The results obtained in the complement fixation test in 668 active cases of tuberculosis, in 20 inactive, and in 314 nontuberculous cases are reviewed by Wadsworth et al. Approximately half were in clinics or sanatoriums; the remainder were patients of physicians in general practice. The results obtained in these routine examinations are of especial interest when compared with the series previously published, which consisted only of cases that were as accurately diagnosed as the modern methods of hospital practice permitted. In the former series, fixation of complement was obtained with the tubercle antigens in from 85 to 95 per cent of the tuberculous cases; in the present series in 84.9 per cent. There were, however, a number of well advanced cases with tubercle bacilli in the sputum and certain incipient cases with a low grade of activity in which no reactions were obtained. Fixation occurred in only a comparatively small proportion of the serum from cases diagnosed as inactive or apparently cured. Reactions in the group of nontuberculous cases of this series were obtained in 14 per cent, as compared with 13.6 per cent in the previous series. In both instances these percentages included the cases reacting in the complement fixation test for syphilis. In this series all the reactions in nontuberculous cases were of low grade (± or +); marked fixation (2+ or stronger) was obtained only in tuberculous cases. In general the degree of activity in the serum was proportional to the activity of the process, or, to state it more accurately, proportional to the reactivity of the tissues in the process, suggesting that a detailed study of individual cases and accurate titration of the activity of the serum from time to time might provide data of broad diagnostic or prognostic significance.

Annals of Internal Medicine, Ann Arbor, Mich.

4: 343-422 (Oct.) 1930

Indications For and Results of Artificial Pneumothorax; Treatment in Pulmonary Tuberculosis. J. B. Amberson, Jr., New York.—p. 343.
*Phrenicectomy and Intercostal Neurectomy for Pulmonary Tuberculosis. J. Alexander, Ann Arbor, Mich.—p. 348.
*Thoracoplasty in Treatment of Pulmonary Tuberculosis. P. K. Brown, San Francisco—p. 361.
Rôle of Surgery in Pulmonary Tuberculosis. G. B. Webb, Colora Springs, Colo.—p. 372.
Limitations of Heliotherapy in Pulmonary Tuberculosis. B. L. Wya, Tucson, Ariz.—p. 376.
*Diagnosis of Preclinical or Latent (Biological) Tubercle in Suspects an Contacts by Caulfeild's Inhibitive and T C F Reactions. W. E. Ogden, Toronto, Ont.—p. 379.
*Problem of Syphilis in Tuberculosis Clinic. A. E. Greer, Houston, Texas.—p. 387.
*Use of Sodium Ricinoleate in Bacterial Hypersensitiveness of Intestinal Tract. R. S. Morris and S. E. Dorst, Cincinnati.—p. 396.

Phrenicectomy and Intercostal Neurectomy for Pulmonary Tuberculosis.—Alexander recommends this operation, with the reservation that his clinical experience with it is based on only six cases, as an apparently effective substitute for thoracoplasty in those cases in which there is no very large cavity demanding mechanical closure but in which considerabl reduction of respiratory mobility, together with some retractio of the thoracic wall, is desired.

Thoracoplasty in Treatment of Pulmonary Tubercu losis.—Brown regards thoracoplasty as an aid to nature' method in closing cavities when its success is threatened b seemingly insurmountable difficulties, size of cavity, its bein held open by extensive adhesions, the recurrence of large hem orrhages, and the failure of lesser efforts to help.

Diagnosis of Tubercle by Caulfeild's Inhibitive an T C F Reactions.—As a result of twenty years' clinical obse vations with 5,000 different cases and 25,000 double serolog tests in a group of five clinicians, Ogden believes that Cau feild's inhibitive and the T C F are laboratory aids in t recognition of latent tuberculosis in the adult. These tests i the adult are comparable in value to the universally accepte intracutaneous tuberculin test as diagnostic in infants. The most dramatic value is seen in tuberculosis contacts. By mea of positive tests he has diagnosed latent tuberculosis two yea before clinical disease and one year before even demonstrab by roentgen ray. The incubation period in the adult is fro one to five years.

Problem of Syphilis in Tuberculosis Clinic.—Gre calls attention to the possibly greater prevalence of syphilis tuberculous patients than is generally acknowledged. He inve tigated 1,944 cases. The Wassermann reaction was positi in 12.4 per cent. The cases were checked by roentgenolog examination of the lungs, repeated sputum analyses, and t complement fixation test for syphilis. The tests were ma on patients applying at a clinic for diseases of the chest, w usually presented the symptoms of cough, loss of weight, afte noon fever and weakness.

Sodium Ricinoleate in Bacterial Hypersensitiveness Intestinal Tract.—Five-grain (0.3 Gm.) globules of sodiu ricinoleate three times a day before meals (and often a four at bedtime), were administered by Morris and Dorst to group of seventy patients. All other forms of treatment, su as diet and colonic flushings, were omitted, to avoid confusi in the interpretation of results. In patients with mucous coliti the effect was striking. In addition to relieving them su jectively, there was a noticeable decrease in the mucus in t stools and finally an absence. Anorexia, loss of weight a belching were often favorably influenced. There was not infr quently a gradual gain in weight, with a feeling of well bei and relief from the dyspeptic symptoms. The patients we able to play golf or carry out exercises that fatigued the formerly. In this group of seventy patients, thirty were entire relieved of their symptoms. In the forty patients remainin the majority experienced great relief, though not entirely r of symptoms. In the cases of mucous colitis, it has been ne essary to use the ricinoleate capsules indefinitely, and in a patients of this group there is a great tendency to recurren of symptoms.

Archives of Surgery, Chicago

21: 555-716 (Oct.) 1930

*Operative Treatment of Lesions of Lower Extremities in Diabet Mellitus. L. S. McKittrick and T. C. Pratt, Boston.—p. 555.
*Spinal Anesthesia in Near East. P. W. Harrison, Muscat, Arabia.—p. 582.
*Etiology of Neoplasms of Breast. H. C. Taylor, Jr., New York.—p. 5
*Induced Paralysis of Diaphragm. J. L. Yates and F. Raine, Milwauke—p. 666.

*Experimental Healing of Bone After Parathyroidectomy. K. Speed and D. L. Rider, Chicago.—p. 679.
*Comparison of Effects of Hemorrhage Under Ether Anesthesia and Under Spinal Anesthesia. J. C. Burch, T. R. Harrison and A. Blalock, Nashville, Tenn.—p. 693.
Evidence Shown in Roentgenograms of Changes in Vascular Tree Following Experimental Sympathetic Ganglionectomy. B. T. Horton and W. McK. Craig, Rochester, Minn.—p. 698.

Operative Treatment of Lesions of Lower Extremities in Diabetes Mellitus.—Two hundred and eighty-one operations for lesions of the lower extremities in patients with diabetes mellitus form the basis of this report by McKittrick and Pratt. These lesions are classified into (1) those due to arterial insufficiency and (2) those due primarily to infection. The importance of such a classification is demonstrated by the results obtained. *Staphylococcus albus* has proved of great importance in operations on diabetic patients. It is the organism most frequently found in cases of minor sepsis of the feet and may be the cause of fatal septicemia. Gas bacillus infection following amputation for gangrene has been a rare complication in this series. Production of gas in wounds infected by staphylococci and streptococci has been frequently seen. The passive exercises of Buerger have proved the most satisfactory method of stimulating circulation. Indications for the various types of operation done are discussed. The 281 operations represent 231 separate conditions with a mortality of 11.6 per cent. The mortality in 119 major amputations for conditions primarily due to arterial insufficiency was 17.6 per cent, and in 19 amputations for conditions primarily due to infection was 10.5 per cent, a combined mortality of 16.6 per cent. These patients died of the surgical conditions. Spinal anesthesia has been the anesthesia of choice.

Spinal Anesthesia in Near East.—Harrison regards spinal anesthesia as the procedure of choice for surgeons working in the jungle, as well as for those in large centers.

Etiology of Neoplasms of Breast.—Clinical observations collected by Taylor from the literature and a study of 271 cases indicate that etiologically the tumors of the breast, including carcinoma, are closely related to those of the endometrium, thyroid and ovary, are somewhat allied to myomas of the uterus, and are in a way equivalent to tumors of the prostate. The tumors of these five organs, therefore, form a group the etiology of whose members shows many points of mutual resemblance. To attempt to relate inflammatory accidents of lactation to cancer of the breast is to classify it etiologically with cancer of the cervix, which on both inductive and deductive grounds appears unjustifiable.

Induced Paralysis of Diaphragm.—Yates and Raine assert that induced paralysis of the diaphragm is beneficial to patients suffering from a number of pleuropulmonary diseases. It makes thoracotomy and thoracoplasty simpler and safer. Its greatest value, prophylaxis, is attained by early utilization. Experimental and clinical evidence indicates a more frequent, more extended and earlier employment of this minor procedure, but always in conjunction with other measures.

Experimental Healing of Bone After Parathyroidectomy.—The lack of calcification of the bones after experimental fracture, in conjunction with the low blood calcium, led Speed and Rider to infer that the calcium stream is directed away from the bones after parathyroidectomy, and that parathyroidectomy, either through this change of calcium stream or balance or through some still undiscovered factor, delays the healing of fracture in experimental dogs.

Effects of Hemorrhage Under Ether Anesthesia and Spinal Anesthesia.—The study made by Burch et al. to determine the effects of loss of blood under ether anesthesia and under spinal anesthesia led to the conclusion that the danger of circulatory failure from hemorrhage is greater under spinal anesthesia than under ether anesthesia.

Illinois Medical Journal, Oak Park

58: 233-312 (Oct.) 1930

Obstetrics. J. S. Templeton, Pinckneyville.—p. 247.
Mental Hygiene Movement. F. P. Norbury, Jacksonville.—p. 250.
Administrative Control and Early Diagnosis of Tuberculosis. G. T. Palmer, Springfield.—p. 258.
Epidemic Meningitis. A. Hoyne, Chicago.—p. 265.
Prognosis and Treatment of Bronchial Asthma Pediatrics. L. Unger, Chicago.—p. 270.
General Paresis: Malarial Treatment. E. F. Traut, Chicago.—p. 275.
Infant Mortality in Southern Illinois. J. J. Donahue, East St. Louis.—p. 278.
Ideas of Doctor's Wife on Cash, Credit and Charity in Medical Profession. F. Aird, Carterville.—p. 282.
Puerperal Period: Management. A. E. Kanter and A. H. Klawans, Chicago.—p. 285.
Treatment of Varicose Veins by Intravenous Injection of Sclerosing Solutions. A. P. Heineck, Chicago.—p. 287.
Roentgenologic Study of Aortic Arch. J. Rudis-Jicinsky, Cicero.—p. 293.
Hypertension and Heart. C. J. McMullen, Chicago.—p. 294.
Are Cycloplegics Necessary in Refraction? C. B. Welton, Peoria.—p. 297.
Colds, Complications and Sequelae. G. P. Conger, Oak Park.—p. 303.
Terminal Bowel and Systemic Disorders. W. A. Hinckle, Peoria.—p. 306.

Johns Hopkins Hospital Bulletin, Baltimore

47: 189-237 (Oct.) 1930

Relation of Allergy to Immunity. A. R. Rich, Baltimore.—p. 189.
Relation Between Phosphorus, Chloride and Bicarbonate in Serum of Rachitic and Normal Rabbits. B. Hamilton, L. Kajdi and D. Meeker, Baltimore.—p. 215.
Fetal Blood Studies: I. Oxygen Relationships of Umbilical Cord Blood at Birth. N. J. Eastman, Baltimore.—p. 221.

47: 239-307 (Nov.) 1930

*Origin of Miliary Aneurysms of Superficial Cerebral Arteries. W. D. Forbus, Baltimore.—p. 239.
Number and Size of Glomeruli in Kidney of Several Mammals. P. A. Kunkel, Jr., Baltimore.—p. 285.
*Mechanism of Wassermann and Precipitation Tests for Syphilis. H. Eagle, Baltimore.—p. 292.
*Effect of Potassium Iodide on Pulse Rates of Normal Individuals. D. McEachern, Baltimore.—p. 299.
*Effect of Ingestion of Potassium Iodide on Electrocardiogram of Normal Individuals. D. McEachern and B. M. Baker, Jr., Baltimore.—p. 304.

Origin of Miliary Aneurysms of Superficial Cerebral Arteries.—In the course of a study of a group of cases of miliary aneurysms of the cerebral arteries, Forbus has found a hitherto undescribed peculiarity in the structure of the wall of the arteries, on which it would appear that the formation of miliary aneurysms depends. This peculiarity consists in a muscular defect in the media located in the portion of the vessel wall forming the angle of bifurcation. This medial defect was sought for in arteries other than those of the brain and found to be present in cases in which there were no aneurysms. Such defects were noted, for example, in the coronary and mesenteric arteries. The frequency of occurrence of the medial defect in normal as well as pathologic cases was found to be sufficiently great to indicate that the peculiarity in structure at the point of bifurcation is a relatively normal arrangement. It seems justifiable to say that miliary aneurysms of the superficial cerebral arteries and most probably those of all other arteries of medium size occur quite independently of any inflammatory process, arteriosclerosis or external trauma, and that these aneurysms as such are not congenital malformations. That they are acquired lesions arising from a combination of focal weakness in the vessel wall, resulting from a congenital muscularis defect, and degeneration of the internal elastic membrane, due to continued overstretching of this membrane, seems the most logical conclusion.

Mechanism of Wassermann and Precipitation Tests for Syphilis.—Eagle asserts that there is not merely a superficial similarity between the flocculation tests for syphilis and bacterial agglutination by an antiserum, or between the Bordet-Gengou phenomenon (specific complement fixation) and the Wassermann test. The analogy extends to the basic mechanism of the reactions. Reagin, an altered globulin in syphilitic serum, combines with the colloidal particles of beef heart lipoid ("antigen"). The surface film of protein thus formed sensitizes the particles to flocculation by electrolyte (Sachs-Georgi, Kahn and others), and also adsorbs complement (Wassermann). Antibody-globulin affects bacteria, red cells or foreign protein in exactly the same manner. The serum change characteristic of syphilis may therefore well represent an antibody response to products of infection. As will be shown, the fact that normal tissue lipoids can be used instead of spirochetes as the antigen in the test tube reaction does not exclude this possibility.

Potassium Iodide and the Pulse Rate.—A statistical analysis was made by McEachern of the pulse rates of thirty-four patients, without thyroid disease or other interfering circumstances, to whom potassium iodide had been administered. Following administration of the drug, twelve showed a significant increase in pulse rate and five a significant decrease. These changes came on gradually about the third to the seventh day and reached a maximum at about the tenth day. The rate returned to normal within a week or so after the drug was discontinued.

Potassium Iodide and the Normal Electrocardiogram.—Iodine, in the form of potassium iodide, was administered by McEachern and Baker by mouth to fourteen normal members of the hospital staff each day in doses of 1 Gm. daily during the first week, 2 Gm. daily during the second week, and 3 Gm. daily during the third week. Four of the subjects were forced to drop out because of rather severe iodide reactions. The remaining ten took the drug for periods ranging up to twenty-two days. Compound solution of iodine was used for the first few days but gave way to potassium iodide owing to bitter complaints of the recipients. In this connection it is suggested that enthusiasts for large doses of compound solution of iodine try a short course of the drug themselves. Electrocardiographic records were made before administration of the drug and every five days thereafter till the end of the experiment. No significant effect on the electrocardiogram was noted.

Journal of Cancer Research, New York

14: 487-634 (Oct.) 1930

*Influence of Suprarenalin (Epinephrine) on Growth of Carcinoma and Sarcoma in Animals. Kanematsu Sugiura and S. R. Benedict, New York.—p. 487.

Nomogram for Calculating Roentgen Dosage. C. Packard, New York.—p. 502.

Effect of Internal Secretions on Division Energy of Paramoecia. G. L. Rohdenburg.—p. 509.

Biologic Significance of Ovarian Tumors in Fowl. J. P. McGowan, Aberdeen.—p. 527.

Distribution of Acid-Soluble Phosphorus Compounds in Tumor Tissue. K. W. Buchwald, Buffalo, N. Y.—p. 536.

Effect of Irradiated Ergosterol and Increased Calcium on Growth of Tumor Tissue. A. Goerner, New York.—p. 545.

Cancer Situation in State of New York. J. M. Swan, Rochester, N. Y.—p. 548.

Changes in Blood Chemistry in Malignant Disease: Carbohydrate Tolerance and Alkalosis. P. Beregoff, New York.—p. 559.

Life History of Female Mammary Gland in Two Strains of Albino Mice. L. M. Gibson, New Haven, Conn.—p. 570.

Factors Influencing Incidence of Mammary Gland Tumors in Inbred Strain of Mice. W. S. Murray, Bar Harbor, Me.—p. 602.

Influence of Epinephrine on Growth of Carcinoma and Sarcoma.—The toxic action of epinephrine on the Flexner-Jobling rat carcinoma and the Rous chicken sarcoma has been investigated by Sugiura and Benedict in three different ways; namely, (*a*) injection directly into and around the tumor, (*b*) injection subcutaneously at a point away from the tumor, and (*c*) in vitro. The development of small tumors in animals is completely inhibited by repeated intratumoral injections of epinephrine while large tumors are seldom beneficially affected by repeated injections. The repeated subcutaneous injection of epinephrine at a remote point does not affect the growth of rat carcinoma and chicken sarcoma. In vitro experiments indicate that the proliferating capacity of the Flexner-Jobling rat carcinoma was partially destroyed by epinephrine, but the Rous chicken sarcoma was unaffected as respects its growth after implantation. Hence, any possible therapeutic value of epinephrine for cancer treatment is limited to local application.

Journal of Clinical Investigation, Baltimore

9: 191-362 (Oct. 20) 1930

*Congestive Heart Failure: V. Potassium Content of Skeletal Muscle Obtained by Biopsy. C. Pilcher, J. A. Calhoun, G. E. Cullen and T. R. Harrison, Nashville, Tenn.—p. 191.

*Action of Histamine on Pancreas. A. V. Neale and T. G. Klumpp, Boston.—p. 197.

*Urea Nitrogen Content of Cutaneous and Venous Blood by Micro Gasometric Analysis. C. Johnston, New York.—p. 209.

Experimental Aortic Insufficiency: II. Cinematographic Studies of Changes in Ventricular Size and in Left Ventricular Discharge. C. J. Wiggers, H. Theisen and H. A. Williams, Cleveland.—p. 215.

Measurement of Sympathetic Vasoconstrictor Activity in Lower Extremities. J. J. Morton and W. J. M. Scott, Rochester, N. Y.—p. 235.

*Sympathetic Inhibition of Large Intestine in Hirschsprung's Disease. W. J. M. Scott and J. J. Morton, Rochester, N. Y.—p. 247.

Serum Calcium in Polycythemia Vera. E. M. Benedict and K. B. Turner, New York.—p. 263.

Serum Electrolyte Studies in Normal and Pathologic Conditions: Pneumonia, Renal Edema, Cardiac Edema, Uremic and Diabetic Acidosis. D. W. Atchley and E. M. Benedict, New York.—p. 265.

Composition of Bile Following Relief of Biliary Obstruction. C. H. Greene, W. Walters and C. H. Fredrickson, Rochester, Minn.—p. 295.

Nitrogen and Sulphur Metabolism in Bright's Disease: I. Retention of Nitrogen and Sulphur in Nephrosis. G. P. Grabfield, Boston.—p. 311.

Effect of Atropine on Gastric Secretion After Histamine Stimulation. W. S. Polland, San Francisco.—p. 319.

Blood Volume and Plasma Electrolyte Changes in Dehydration of Infants. R. McIntosh, L. Kajdi and D. Meeker, Baltimore.—p. 333.

Problem of Sodium Salicylate Excretion in Bile. B. Halpert, M. T. Hanke and G. M. Curtis, Chicago.—p. 359.

Potassium Content of Skeletal Muscle.—Pilcher et al. found that the water content of pieces of gastrocnemius muscle removed by biopsy from patients with cardiac edema was invariably increased. The percentage of solids was correspondingly decreased. These changes usually persisted after clinical signs of edema had disappeared. The potassium content of the wet muscle from edematous patients was invariably abnormally low. The amount of potassium in the dry muscle was usually but not always diminished. As edema decreased, the potassium content of the wet muscle rose in three subjects; that of the dry muscle increased in two of them. The administration of potassium dibasic phosphate was followed by a rise in the potassium content of the muscle.

Action of Histamine on Pancreas.—The action of histamine on the pancreatic secretions into the duodenum in children of different ages has been investigated by Neale and Klumpp. Histamine caused no increase of either the volume of pancreatic secretion or its enzyme activity. An increase in the alkalinity of the duodenal contents (alkaline tide) accompanied the secretion of acid into the stomach in response to histamine.

Urea Nitrogen Content of Cutaneous and Venous Blood.—The concentration of urea nitrogen in the blood from ear puncture has been compared by Johnston with that from the vein in thirteen experiments on six normal and six nephritic subjects, without regard to food intake. No difference between venous and cutaneous blood exceeding the limit of experimental error was found to exist.

Sympathetic Inhibition of Large Intestine in Hirschsprung's Disease.—A most important desideratum in surgery of the sympathetic nervous system is the development of accurate criteria for detecting sympathetic overactivity in the various systems affected. The temporary interruption of sympathetic stimuli to the involved area is used to select appropriate cases and to estimate how much effect removal of sympathetic innervation will have. Spinal anesthesia has produced temporarily motor activity of the colon in two cases of Hirschsprung's disease reported by Scott and Morton and in experiments made by them on animals. The motor anomaly in at least one type of megalocolon is dependent on central sympathetic inhibition of the large bowel. They propose the effect of spinal anesthesia on the motor function of the large bowel as a test of sympathetic overactivity in Hirschsprung's disease.

Maine Medical Journal, Portland

21: 167-186 (Oct.) 1930

Endocervicitis. L. F. Fallon, Augusta.—p. 170.

Precancer of Uterus. R. W. Wakefield, Bar Harbor.—p. 175.

Treatment of Cancer of Uterine Cervix and Breast by Radium and Deep Therapy Roentgen Ray. B. Hunt, Bangor.—p. 178.

Nebraska State Medical Journal, Norfolk

15: 377-416 (Oct.) 1930

Development and Scope of Thoracic Surgery. H. H. Davis, Omaha.—p. 377.

Pelvic Irradiation in Cancer of Cervix. P. Findley, Omaha.—p. 381.

Cardiac Emergencies. A. Sachs, Omaha.—p. 384.

Early Diagnosis of Pulmonary Tuberculosis. L. T. Sidwell, Kearney.—p. 391.

Therapeutic Value of Blood in Pediatrics. E. V. Wiedman, Lincoln.—p. 393.

Mechanical Constipation. L. E. Moon, Omaha.—p. 398.

Problem of Draining Peritoneal Cavity. H. C. Miller, Omaha.—p. 401.

Tetanus: Case Successfully Treated with Antitoxin. E. C. Henry and C. A. Heise, Omaha.—p. 404.

15: 417-456 (Nov.) 1930

Fractures of Upper Extremity. J. E. M. Thomson, Lincoln.—p. 417.
Management of Head Injuries. L. D. McGuire, Omaha.—p. 427.
Management of Ocular Injuries. J. M. Patton, Omaha.—p. 429.
Injuries to Thorax. H. H. Everett, Lincoln.—p. 433.
Muscle and Nerve Injuries. R. Schrock, Omaha.—p. 434.
Traumatic Lesions of Abdomen. A. O. Fasser, Fremont.—p. 436.
Management of Injuries of Hip in Aged. R. L. Schroeder, Omaha.—p. 439.
Anterior Poliomyelitis. A. E. Bennett, Omaha.—p. 443.

New England Journal of Medicine, Boston

203: 807-856 (Oct. 23) 1930

Injury of Serratus Magnus (Anterior) Muscle. S. M. Fitchet, Boston.—p. 818.
*Treatment of Lobar Pneumonia with Homologous Convalescent Serum. R. T. Beebe and W. D. Sutliff, Baltimore.—p. 823.
*Constipation and Catharsis. S. M. Jordan, Boston.—p. 826.
*Inception of Acute Leukemia. A. T. Milhorat, New York.—p. 828.
*Treatment of Fractures of Humerus by Mobilization and Traction. G. K. Coonse and H. Moore, Columbia, Mo.—p. 829.
*Nosebleed and Vomiting in Rheumatic Individuals. S. A. Levine, T. Andren and K. A. Homans, Boston.—p. 832.
Surgeon and Pathologist View Appendicitis. E. D. Leonard and S. C. Dalrymple, Chestnut Hill, Mass.—p. 834.
Ceremonial Circumcision. E. F. Kiser, Indianapolis.—p. 835.

203: 857-908 (Oct. 30) 1930

Early Clinical Symptoms and Physical Signs in Pulmonary Tuberculosis. C. Floyd, Boston.—p. 857.
Early Roentgen Ray; Early Diagnosis. W. B. Davidson, Worcester, Mass.—p. 860.
Relationship of Recent Investigations to Diagnosis and Prognosis in Clinical Tuberculosis. C. A. Doan, Columbus, Ohio.—p. 862.
Examination of Rectosigmoidal Region. S. B. Kleiner, New Haven, Conn.—p. 870.
Preventive Medicine and Mental Deficiency. M. W. Barr and E. A. Whitney, Elwyn, Pa.—p. 872.
I. Autopsy Standards. II. Autopsy Permission. I. W. Parkhurst, Boston.—p. 876.

Treatment of Lobar Pneumonia with Homologous Convalescent Serum.—Two patients with type II lobar pneumonia and one patient with type III lobar pneumonia were treated by Beebe and Sutliff with serum from homologous donors. The serum was all given intravenously within forty-eight hours, on the third and fourth days of the disease, and in amounts varying from 310 to 440 cc. One patient with type II pneumonia recovered after having the usual eight days' course, whereas the other two patients became progressively worse and died following treatment. In spite of the attempt to administer such convalescent serum under favorable conditions, the results obtained in these three cases fail to demonstrate any benefit derived from its use.

Constipation and Catharsis.—Jordan distinguishes between the sluggish colon that lacks sufficient stimulus to work and the fatigued, weakened colon that lacks the power to propel its contents and has lost the coordination characteristic of normal. The patient with a sluggish colon usually gives a history of infrequent, dry stools, without abdominal distress or digestive symptoms. The patient with the fatigued, weakened colon usually gives a history of stools of variable consistency, from the hard dry type to the watery or mushy type. He complains of shifting abdominal distress, distention and eructations, for which he has used cathartics in increasing doses, supplementing them with the use of coarse food and enemas. The treatment of these two types of constipation should be different. The former requires only the inclusion in the diet of such foods as will stimulate the colon, such as fruit, vegetables and coarse flours. General hygienic measures and exercise are also to be recommended. In the treatment of the second type, rest—both general and local—should be the keynote. Bed rest and even hospitalization are often required. Rest for the colon itself is obtained by the use of diet, at first relatively low in residue and nonirritating, physically and chemically. Heat, applied externally and used in the form of hot drinks and food, is useful for its soothing effect. Atropine is of value in many cases. As the colon gradually recovers from its fatigue and irritation, as evidenced by the subsidence of distress and digestive symptoms, and by its improvement in function, the diet is gradually enlarged until only the most irritating foods, such as raw fruits, the coarser vegetables, fried foods and pastries, are excluded. During this period of rest, and before the function of the colon is restored, bowel movements are induced by procedures that produce the least irritation, such as small oil or saline enemas. Laxatives are entirely discarded during the period of reeducation of the colon.

Inception of Acute Leukemia.—A case of acute myeloid leukemia in a man, aged 20, is reported by Milhorat in which the leukemic blood picture developed in a period of six days. The course was rapidly downhill. On the fifty-third day after his admission, and the thirty-seventh day after the appearance of a leukemic blood picture, the patient died. Permission for a necropsy was not granted.

Treatment of Fractures of Humerus by Mobilization and Traction.—The apparatus used by Coonse and Moore consists of a Thomas or Jones-Murray humerus splint to which is attached a flexible forearm piece (Pierson attachment). This splint is suspended from an overhead frame or bar. Traction is applied in the line of the humerus by means of rubber bands or a weight suspended over a pulley. Traction straps are also applied to the forearm and maintained by means of a Spanish windlass. The forearm attachment is then counterbalanced to allow active and passive motion of the elbow joint. The humerus splint is so suspended that a moderate amount of active and passive motion of the shoulder can be maintained. The method is said to be ideal for treatment of uncomplicated fractures of the humerus in healthy adults. It prevents the occurrence of joint adhesions and joint stiffness. It promotes increased circulation to the injured part with consequent rapidity of callus formation and repair of the fracture. It prevents atrophy of the muscles. The method also affords the great advantage of visibility and palpability of the injured part. Any marked displacement in alinement is readily visible. It is also possible with this method to correct existing deformity. Lateral displacement can be controlled by direct pressure on the part and anteroposterior displacement by elevation or depression of the forearm. It is also possible to administer massage and baking as desired. Economically there is a tremendous saving to the individual, as the period of disability has been greatly shortened. This method is not applicable to old people who would not tolerate bed treatment or in the case of young children. The method requires careful hospital supervision.

Nosebleed and Vomiting in Rheumatic Individuals.—The frequency of spells of nausea, vomiting (cyclic vomiting) and epistaxis was ascertained by Levine et al. in 100 individuals suffering from rheumatic fever or one of its allied conditions, such as chorea or rheumatic heart disease. This was compared with the frequency of similar symptoms in a control group of 100 nonrheumatic individuals of approximately the same age, coming to a surgical clinic. According to the method used in estimating the occurrence of these symptoms, they were found to be from three to four times as frequent in the rheumatic as in the nonrheumatic group.

Philippine Journal of Science, Manila

43: 367-482 (Nov.) 1930

Development of Sugar-Cane Plant in Philippines. M. L. Roxas and M. Villano.—p. 367.
Occlusion of Lead and Copper in Nonferrous Alloys by Metastannic and Metantimonic Acids. S. Del Mundo.—p. 403.
Naphthol Esters of Chaulmoogric Acid and Chaulmoogryl Naphthylamines. I. de Santos and A. P. West.—p. 409.
Philippine Nabidae with Catalog of Species of Gorpis (Hemiptera). H. M. Harris.—p. 415.
Inquiry into So-Called Latent Infection in Yaws-Vaccinated Monkeys as Possible Result of Test for Immunity by Intradermal Inoculation with Living Yaws Material. I. Miyao.—p. 425.
Immunologic Relation Between Three Philippine Strains of Yaws. I. Miyao.—p. 429.
Is Framboesia Tropica a Nosologic Entity? I. Miyao.—p. 433.
Protozoa Parasitic in Plants and Animals of Philippine Islands. R. Hegner and H. J. Chu.—p. 451.

Public Health Reports, Washington, D. C.

45: 2609-2667 (Oct. 24) 1930

Cooperative Rural Health Work of Public Health Service in Fiscal Year 1930. L. L. Lumsden.—p. 2613.

45: 2668-2732 (Oct. 31) 1930

Incidence of Endemic Goiter in Northern Ireland. R. Olesen and P. A. Neal.—p. 2669.
Influence of Size of Explant on Cultures of Chick Fibroblasts in Vitro. W. R. Earle and J. W. Thompson.—p. 2672.

Surgery, Gynecology and Obstetrics, Chicago

51: *449-590 (Oct.) 1930*

*Larynx as Related to Surgery of Thyroid Based on Anatomic Study. M. Nordland, Minneapolis.—p. 449.
Tendon Sheaths of Foot and Relation to Infection. M. Grodinsky, Omaha.—p. 460.
*Calcium Partition in Pregnancy, Parturition and Toxemias. A. Cantarow, T. L. Montgomery and W. W. Bolton, Philadelphia.—p. 469.
*Aschheim-Zondek Reaction for Pregnancy. H. C. Mack, Detroit.—p. 476.
Art of Surgery. E. S. Judd, Rochester, Minn.—p. 479.
Vaginal Hysterectomy Under Local Anesthesia. G. Gellhorn, St. Louis. —p. 484.
Technic of Total Hysterectomy. B. Solomons, Dublin, Ireland.—p. 491.
*Resection of Presacral Nerve in Treatment of Cord Bladder. J. R. Learmonth and W. F. Braasch, Rochester, Minn.—p. 494.
Sarcoma of Cervix. L. E. Phaneuf, Boston.—p. 500.
Diaphragmatic Hernia Associated with Traumatic Gastric Erosion and Ulcer: Eight Cases. S. W. Harrington, Rochester, Minn.—p. 504.
*Control of Morbidity and Mortality Following Pelvic Surgery. W. T. Dannreuther, New York.—p. 522.
Opinion on Present High Operative Mortality in Acute Appendicitis. J. B. Deaver, Philadelphia.—p. 529.
Spina Bifida Occulta: Two Cases. F. Jelsma and R. G. Spurling, Louisville, Ky.—p. 537.
Angioma of Bladder: Case. H. G. Hamer and H. O. Mertz, Indianapolis. —p. 541.
Cystitis Emphysematosa: Three Cases. R. G. Mills, Fond du Lac, Wis. —p. 545.
Trichomonas Vaginalis Vaginitis. S. J. Kleegman, New York.—p. 552.
Thoracoplasty Retractors. S. J. Mattison and H. T. Upshaw, Pasadena, Calif.—p. 556.
Therapy of Puerperal Infection. C. J. Miller, New Orleans.—p. 557.

Larynx as Related to Surgery of Thyroid.—Since Kocher called attention to the possibility of injury to the superior laryngeal nerve in thyroid surgery, and since all observations point to the fact that the interarytenoid muscle is supplied by the internal branch of the superior laryngeal nerve, and since his dissections indicate that it is easy to injure the superior laryngeal nerve in the ligature of the superior thyroid artery, Nordland feels that it is reasonable to conclude that postoperative disturbance to the voice may occur from injury to this nerve in thyroid surgery. Further, because the recurrent laryngeal nerves occur anterior to the inferior thyroid arteries just as frequently on both sides, and because they penetrate the thyroid space a little farther from the tracheo-esophageal groove than is usually described, therefore, to avoid injury to these nerves, extrafascial ligation of the inferior thyroid artery, according to de Quervain, is more reasonable when ligation of this artery is contemplated.

Calcium Partition in Pregnancy, Parturition and **Toxemias.**—Cantarow et al. assert that during the course of normal pregnancy and early labor there is a gradual diminution of total serum calcium, a slight increase in diffusible calcium, and a marked decrease in nondiffusible calcium. The ratio of diffusible to nondiffusible calcium increases steadily, reaching a maximum in the first stage of labor. This disturbance is identical with that present in bronchial asthma and allied disorders. The toxemias of pregnancy are characterized by a marked decrease in the ratio of diffusible to nondiffusible calcium, due in most instances to an increase in the nondiffusible fraction. This finding suggests a condition of diminished cell permeability with associated disturbance of tissue functions in these disorders.

Aschheim-Zondek Reaction for Pregnancy.—A study of the Aschheim-Zondek reaction in 100 cases has convinced Mack that it offers a reliable laboratory method for the early diagnosis of uninterrupted intra-uterine and extra-uterine pregnancy, hydatidiform mole, and malignant chorio-epithelioma. Its simplicity permits it to be carried out without elaborate equipment. It has been proved a valuable adjunct to ordinary clinical methods in difficult problems involving the diagnosis of pregnancy.

Resection of Presacral Nerve in Treatment of Cord Bladder.—A case of cord bladder is described by Learmonth and Braasch in which both pelvic and pudic nerves were partly paralyzed. An operation is described by which the thoracicolumbar sympathetic supply to the bladder was interrupted. In view of the part played by this operation in eliminating residual urine, the possibility is raised that the hypogastric nerves carry inhibitory influences to the bladder.

Morbidity and Mortality Following Pelvic Surgery.—In a series of 1,000 consecutive gynecologic operative cases reviewed by Dannreuther, there were complications during convalescence in 79, a morbidity of 7.9 per cent; 19 patients died, a mortality of 1.9 per cent. He concludes: Postoperative transfusion should never be necessary except in the presence of ectopic pregnancy, secondary hemorrhage or sepsis. Preoperative cystoscopy and renal function tests will eliminate many useless pelvic operations. Severe anemia, pyorrhea, respiratory disorders, a compromised myocardium, arterial hypertension, and impaired metabolism are indications for postponing operation in elective cases; spinal anesthesia may reduce the hazards in emergency cases. Irradiation and diathermy are dangerous in the presence of active infection or necrobiosis. Meticulous peritonealization and burying all suture knots minimizes the likelihood of postoperative intestinal obstruction. The incidence of pulmonary complications can be lessened by the invariable employment of a skilled anesthetist. Correcting indicanuria and obstinate constipation before operation will practically eliminate postoperative pyelitis. Persuading the patient to practice active motion of the extremities throughout convalescence is good insurance against thrombophlebitis and embolism. Pronounced tachycardia developing during the first half hour of anesthesia is an indication to terminate the operation as soon as possible. Unpreventable surgical shock will develop occasionally in profoundly septic patients. Patients with a high metabolic rate should not be subjected to irradiation. The control of postoperative morbidity and mortality following gynecologic operations is contingent on conscientious preoperative preparation of the patient, expert anesthesia, sound surgical judgment, and skilful after-treatment.

Tennessee State Medical Assn. Journal, Nashville

23: 353-392 (Oct.) 1930

Glass Ball Implantation Following Enucleation. E. C. Ellett and R. O. Rychener, Memphis.—p. 353.
Medical Ethics and Medical Care. M. Fishbein, Chicago.—p. 362.
Progress in Treatment of Diabetes Mellitus. C. E. Homan, Jr., Chattanooga.—p. 369.
One Hundred Years of Tennessee State Medical Association. P. M. Hamer, Knoxville.—p. 373.

United States Vet. Bur. M. Bull., Washington, D. C.

6: 837-921 (Oct.) 1930

Reflexology. M. K. Amdur.—p. 837.
Injection Treatment of Varicose Veins With or Without Ulcers. H. D. Luse.—p. 850.
Complications Following Injection Treatment of Varicose Veins. C. C. Burton.—p. 854.
Injection Treatment of Varicose Veins. B. H. Frayser.—p. 858.
Electrocardiography. R. S. E. Murray.—p. 860.
Gunshot Wound of Frontal Lobe Without Symptoms. B. Apfelberg.—p. 863.
*Technic to Facilitate Reading of Results with Kahn Test in Tinted or Cloudy Serum. B. S. Levine.—p. 867.
Bronchial Asthma. W. J. Roberts.—p. 869.
Exercise in Pulmonary Tuberculosis. M. L. Gallagher.—p. 872.
Gas Anesthesia. G. W. Threlkeld.—p. 874.
Surgical Treatment of Pyorrhea Alveolaris. E. C. Kettner.—p. 877.
*Coincident Carcinoma, Tularemia and Syphilis. V. L. Minehart.—p 880.
*Paroxysmal Auricular Fibrillation. E. W. Hollingsworth.—p. 882.
Intracranial Tumor, Glioma. H. B. West.—p. 884.
Fatal Hemorrhage from Intestinal Varix. G. O. Bassett.—p. 886.
Open Reduction of Patellar Dislocation. T. S. Cusack.—p. 888.
Unusual Brachial Plexus Injury. F. L. Long.—p. 890.
Practical Factors of Physical Program for Mentally Ill. J. E. Davis. —p. 893.
Nursing Care of Brain Tumor Patients. J. Lyons.—p. 897.
Selective Menu in Hospital. G. Bulman.—p. 899.
Discrimination Necessary in Circulation of Books to Tuberculous Patients. M. E. Kurtz.—p. 901.

Reading of Results with Kahn Test in Tinted or Cloudy Serum.—A technic has been devised by Levine to facilitate the reading of Kahn results in hemolyzed and highly tinted serum and in serum of doubtful reaction. A quantity of the serum, usually 1 cc., is placed in a tall serologic tube, and a wax pencil mark is made to indicate the meniscus of the fluid. Two parts of saline solution (in this instance 2 cc.) are now added to the tube, and the contents well mixed. The tube now contains three volumes (3 cc.) of fluid. To this are added two parts (2 cc. in this case) of a saturated solution of ammonium sulphate, and the contents of the tube are shaken. The tube is now centrifugated at high speed (about 3,000 revolutions per minute) for fifteen minutes. The precipitate must become well packed at the bottom of the tube. The supernatant fluid is then thoroughly drained and saline solution added to the wax-pencil mark, thus bringing the contents of the tube to the original volume of the serum (1 cc.). The tube is shaken until the entire precipitate is dissolved. It is again centrifugated to remove all extraneous suspended matter and the clear fluid is poured into another tube and used in the precipitation test, which is conducted in exactly the same manner as prescribed by Kahn for serum (5). That is, into each of three Kahn tubes antigen-saline mixture is placed in 0.05, 0.025, and 0.0125 cc. quantities; then to each of the tubes are added 0.15 cc. of the clear and colorless fluid containing the dissolved precipitate. The tubes are shaken for three minutes; 1, 0.5, and 0.5 cc. of saline solution are added, respectively; the tubes are again shaken for a short time and the results are read. Highly tinted serum is rendered practically colorless, and chylous and turbid serum becomes clear. Bile-stained serum is cleared of extraneous substances which might cause confusion in the end-results. Doubtful reactions occasionally change in their intensity to become stronger or slightly weaker, but are clear-cut wherever the precipitate is the result of interplay of immunologic factors. The procedure is in accord with the Kahn test in every respect.

Coincident Carcinoma, Tularemia and Syphilis.—Minehart relates the case of a man, aged 39, who, while driving his car, ran over a large jack rabbit. Soon afterward one of the front tires went flat and he got out to change tires. While removing the old tire he noticed that it was well covered with rabbit hair and blood. Incidentally, while changing the tire he suffered an abrasion on his left foot. This he examined and applied a temporary dressing. He remained in his usual health for a week or ten days and then became quite ill, with malaise, chills, fever and severe headaches. Also the abrasion on his left foot showed signs of irritation. His blood serum was positive for tularemia. He remained in the hospital for about four months, when he was discharged, improved. In a few days, however, he became seriously ill again. His blood was again examined. The result of the Wassermann test was 100 per cent positive for syphilis and negative for *Bacterium tularense*. Despite intensive treatment, the patient succumbed. At the necropsy, among other things, an infiltrating new growth was found about the right kidney. This proved to be hypernephroma, primary, in the right suprarenal, with metastases to the liver and lungs; another example of a cancer unsuspected before death.

Paroxysmal Auricular Fibrillation.—Hollingsworth reports a case of repeated attacks of paroxysmal auricular fibrillation, with normal rhythm recurring promptly each time under quinidine, and the attacks practically abolished under 0.2 Gm. doses, twice daily. There subsequently developed nocturnal epileptiform seizures with cardiac mechanism at the time undetermined, these seizures being practically abolished following administration of barium chloride. The patient is in good general condition and is leading a normal life five years after the initial trouble began.

Wisconsin Medical Journal, Madison

29: 549-608 (Oct.) 1930

Unusual Forms of Goiter. G. M. Curtis, Chicago.—p. 549.
*Treatment of Bronchiectasis with Lipiodol: Nineteen Cases. R. H. Stiehm, Madison.—p. 556.
Skin Infections in Metal Working Plant. A. E. Fredenberg, Clintonville.—p. 562.
Roentgen Therapy. E. A. Pohle, Madison.—p. 565.
Spinal Roentgen-Ray Therapy in Dermatitis Herpetiformis. H. R. Foerster, Milwaukee.—p. 571.
Radiography in Ear Diseases. S. Baumgarten, Milwaukee.—p 574
Congenital Diaphragmatic Hernia: Case. G. S. Metcalf, Janesville—p. 576.
Uterine Fibroid Complicating Pregnancy: Case. W. J Tucker, Ashland.—p. 576.
Pregnancy in Bicornate Unicornis Uterus: Case. G. S. Metcalf, Janesville.—p. 577.

Treatment of Bronchiectasis with Iodized Oil.—Stiehm reports his results with iodized oil in these cases. Complete cessation of symptoms occurred in 33 per cent; improvement in 46 per cent; no improvement in 21 per cent. Complete credit for the results is given to the insufflations of iodized oil. Hygienic living, postural drainage, rest, and the systemic effect from the iodine content of the iodized oil are all given consideration. Case histories show that patients treated with iodized oil do better than those without treatment.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

18: 185-352 (Oct.) 1930

Cutting for Stone: Frère Jacques' Operation. D. Power.—p. 185.
*Pathology of Congenital Torticollis. D. S. Middleton.—p. 188.
Hemangioma of Bladder: Two Cases. J. B. Macalpine.—p. 205.
*Anatomic Result of Periarterial Sympathectomy. D. M. Blair, D. Duff and J. A. Bingham.—p. 215.
Osteoplastic Craniotomy: New Technic for Resection and Turning Down of Bone Flaps from Skull. L. Rogers.—p. 221.
*Purpura as Acute Abdominal Emergency. H. Bailey.—p. 234.
*Mixed Tumors of Salivary Glands. D. H. Patey.—p. 241.
Experimental Mitral Obstruction in Relation to Surgical Treatment of Mitral Stenosis. W. C. Wilson.—p. 259.
Complications of Hydatid Disease. H. Dew.—p. 275.
Treatment of Infected Open Fractures. E. W. H. Groves.—p. 294.
*Operation for Complete Exposure of Elbow Joint. H. W. L. Molesworth.—p. 303.
*Hemangioma of Kidney. W. A. Mackey.—p. 308.
*Sarcoma and Trauma. R. J. Willan.—p. 321.
*Fatal Cardiac Failure Occurring in Persons with Angular Deformity of Spine. C. F. Coombs.—p. 326.
Pigmentation from Bismuth Absorption After Use of B. I. P. P. W. I. de C. Wheeler.—p. 329.
Congenital Stenosis of Duodenum: Case. L. Gordon.—p. 331.
Congenital Atresia of Small Intestine: Case. C. Polson.—p. 333.
Uterus Masculinus: Complete Tubular Hermaphroditism with Teratomatous Enlargement of Undescended Testicle. R. H. Metcalfe.—p. 335.
Hydatid Cyst of Neck. I. Fraser.—p. 338.
Dermoid Cyst Simulating Gastric Ulcer. R. J. M. Love.—p. 339.

Pathology of Congenital Torticollis.—Middleton contends that in all cases "congenital" torticollis results from fibrosis in the sternomastoid muscle consequent on the development and absorption of the so-called sternomastoid tumor of infancy. Sternomastoid tumor and, therefore, torticollis, result from a temporary acute venous obstruction in the muscle, this obstruction taking place during labor. It is probable that such a temporary venous obstruction has been rendered permanent by patchy intravascular clotting in the obstructed venous tree. Attention is drawn to the frequent occurrence of an exostosis at the clavicular attachment of the sternomastoid muscle in cases of fibrosis affecting that head. The facial asymmetry and plagiocephaly associated with torticollis is shown to be dependent on the prolongation of the cervical curve into the base of the skull and is therefore properly called a scoliosis capitis. An explanation is given of the etiology of idiopathic facial asymmetry and plagiocephaly of infants.

Anatomic Result of Periarterial Sympathectomy.—The condition of the nerves in the main arteries was investigated by Blair et al. in a leg amputated five weeks after the periarterial injection of alcohol into the sheath of the femoral artery. All nerves running with the artery at the seat of the previous operation appeared to have degenerated distally, but an abundant additional supply running to the vessels lower down from the ordinary nerves of the limb then showed up in marked contrast. This accessory nerve supply arrives on the vessels of the leg mainly in the popliteal space. The incidence of these accessory nerves was also checked by anatomic dissection in another limb. The incoming nerve twigs have a characteristic structure, being composed chiefly of small medullated fibers, with a few large medullated fibers and a fair number of nonmedullated fibers. It is suggested that these incoming nerves may be especially concerned with the blood vessels to the muscles.

Purpura as Acute Abdominal Emergency.—Bailey reports two cases in which subserosal extravasation of blood as a manifestation of purpura constituted an acute abdominal emergency. In one of the cases about four feet of jejunum was the color of bright-red blood and on closer examination extravasated blood could be seen beneath the serosa. The whole of this area was heavy with blood. No intussusception or obstruction was found. In the second case the patient complained of acute abdominal pain, spasmodic in character; he had vomited copiously and repeatedly. One year previously he had had a similar attack lasting three days. Preparatory to an abdominal examination, while the nurse adjusted the bedclothes, the patient grasped the bedrail above his head, and in so doing exposed a large bruise on his arm. An examination of the limbs showed a typical purpuric rash. Deep tenderness in the epigastrium was the only physical sign on abdominal examination. The rectal examination was negative. The diagnosis of purpura with submucosal hemorrhage into the jejunum was made, and it was resolved to open the abdomen if the symptoms continued. As it happened, the abdominal pain and vomiting subsided within an hour, and in a fortnight the rash had faded almost completely. Some months later the patient was again admitted with similar symptoms, and he stated that attacks of colic and vomiting had recurred at weekly intervals. As the platelet count was low, after three weeks' rest in bed the spleen was removed after preliminary blood transfusion. Ten months later the patient wrote that he had been quite free from colic and was at work, although the rash appeared if he allowed himself to become constipated.

Mixed Tumors of Salivary Glands.—The pathologic material from fifty-two cases of mixed tumors of the salivary glands and a certain number of fresh tumors were examined by Patey. He concludes from this study that the mixed tumors of the salivary glands are a composite group of epithelial tumors, the varying pathologic features of which depend on the degree of differentiation attained, the rapidity of division of the cells, and the amount of myxomatous change undergone by the epithelium. According to the degree to which these changes have taken place, all gradations may be encountered between a myxoma on the one hand and a highly differentiated tumor with ducts and acini on the other, and between a slowly growing tumor with regular cells and an irregular anaplastic growth. Based on these factors, a practical pathologic classification has been evolved. The combined pathologic and clinical study has shown that this classification allows of a certain amount of correlation between the clinical and pathologic observations but that the correlation is by no means complete.

Operation for Complete Exposure of Elbow Joint.—Molesworth describes an operation which he says is easily executed in practice and will prove of service in a search for loose bodies and fragments of bone. Repair of T-shaped and other articular fractures will be facilitated and arthroplasty with preservation of the strong lateral ligaments may be expected to yield a stable joint. He also says that it lends itself to the exposure of those complicated injuries involving bone, joint and nerves encountered in this situation.

Hemangioma of Kidney.—A case is reported by Mackey in which dangerous hematuria arose from a cavernous hemangioma of the renal pelvis. Seventeen examples of hemangioma of the kidney have been collected from the literature. The material has been classified and an attempt has been made to correlate symptoms with the situation and pathologic characters of the lesions. The treatment of the various lesions is briefly considered.

Sarcoma and Trauma.—Willan reports a case of spindle-cell sarcoma of the femur associated with an undoubted injury to the same area. Roentgenograms showed a normal bone three months after the accident; within the next five months there was a spontaneous fracture from the growth. Similar growths were found in two other bones. Death took place one year and eleven months after the accident. Sarcoma was confirmed by a postmortem examination.

Cardiac Failure in Persons with Angular Deformity of Spine.—Coombs reports four cases in which there was a gross deformity of the dorsal spine. In three, there was an angular kyphosis of tuberculous origin. In the other, angulation was lateral as well as anteroposterior and was said to have occurred in another member of the family, in association with symptoms of cardiac failure, like those which the patient experienced. All these four subjects had been deformed for many years; three of them since early childhood; but not until a few months before death—twelve months in one case, less than six months in the others—were there any cardiac symptoms. In all, the first complaint was of dyspnea, and this increased rapidly until it reached an extreme degree. By the time that Coombs saw them, all four were cyanosed, and in one patient the fingers were clubbed and purple. In all of them there was an extreme and increasing dropsy up to the waist line. The pulse was quick but regular in every instance; the blood pressure was low and the pulse pressure gap narrow in three of the four patients. Unfortunately no electrocardiograms were taken, as all four patients were extremely ill when first seen. Alternation of the pulse was not detected in any of them. The physical signs were so distorted by the deformity of the chest that not much could be definitely established. It is, however, worthy of note that the impulse was always diffuse and the basic second sound relatively loud, while in all a "bruit de galop" was heard. Physical signs of bronchitis, amounting in one instance to a bronchopneumonia, were also observed. Postmortem examinations were made in two cases. In one patient, a globular enlargement of the heart was noted, in which both ventricles shared, the wall of the right chamber being as thick as that of the left. Neither pericardium nor valves showed any gross change. This is true also of the heart in the second case. Here was noted a remarkably acute angulation of the aortic arch, which had been thus penalized for clinging too faithfully to the deformed spine. In this case also there was some fibrosis round the root of the pulmonary artery, as well as a manifest reduction in the capacity of the lungs.

Irish Journal of Medical Science, Dublin

2: *277-324* (July) 1930

*Atypical Meningitis. R. H. Micks.—p. 280.
Parenteral Treatment with Sulphur in Dementia Praecox. K. Loberg.—p. 285.
Mumps Meningitis. V. M. Synge.—p. 290.
Chordotomy for Pain. A. A. McConnell.—p. 291.
Ganglioneuroma of Cervical Sympathetic. H. F. MacAuley.—p. 297.
Three Unusual Cases. J. M. O'Donovan.—p. 301.
Two Tumors of Testis. J. McGrath.—p. 303.

Atypical Meningitis.—Micks describes three cases of meningitis in which the cerebrospinal fluid, though turbid with polymorphonuclears, did not contain any organism visible in films or producing growth on standard culture mediums. In two of the three, recovery took place; in the third the meningitis seemed nearly cured when sudden death took place. Micks suggests the possibility of sporadic infections with a filter-passing organism of the same type and habits as the virus which is believed by many to be the cause of the myelitis which occasionally follows other fevers, for example, vaccinia and measles.

Journal Obst. & Gynec. of Brit. Empire, Manchester

37: 421-752 (Autumn) 1930

Investigations into Cause of Onset of Labor. H. Allan and E. C. Dodds.—p. 447.
*Occult Nephritis and Relation to Pregnancy Toxemias. F. J. Browne and G. H. Dodds.—p. 476.
*Leukorrhea in Virgin. A. Sharman.—p. 483.
*Investigations into Death of Child Following Induction of Labor by Means of Quinine. E. S. Sadler, W. J. Dilling and A. A. Gemmell.—p. 529.
Blood Sedimentation Test: Application to Gynecology. E. D. Jackson.—p. 547.
Urinary Fistula in Women. N. Mahfouz Bey.—p. 566.
Epiganthus: Rare Fetal Monstrosity. G. I. Strachan.—p. 577.
Ectopic Gestation Presenting Unusual Features: Two Cases. J. P. Maxwell.—p. 582.
Carcinoma Occurring in Stump of Cervix Uteri Twenty Years After Subtotal Hysterectomy. M. L. Treston.—p. 587.
Use of Vaccines in Leukorrhea. W. L. Forsyth.—p. 589.

Occult Nephritis and Relation to Pregnancy Toxemias.—Browne and Dodds bring forward experimental evidence to show that chronic renal damage may exist during the intervals between pregnancies and yet fail to give clinical indication of its presence. In these cases, the subjects of occult nephritis, albuminuria appears toward the end of pregnancy. The albuminuria need not necessarily appear at an earlier date and may even appear at a later date, in successive pregnancies. These observations suggest that in the so-called recurrent toxemias of pregnancy there is all the while a mild degree of chronic renal damage, which undergoes exacerbation under the strain of pregnancy, and that the "low reserve kidney" may be in the same category.

Leukorrhea in Virgin.—Sharman points out that there is encountered in virgins a definite, clinical condition of profuse leukorrhea, unassociated with anemia, debility and constipation, which, in them, are the common factors associated with mild and varying degrees of "white discharge." Almost two thirds of all cases occur between 20 and 30 years of age: most are unassociated with dysmenorrhea or any other complaint. A follow-up involving seventy-six inpatients shows that the results of hospital treatment have been unsatisfactory. Numerous conditions may be causes or, at least, associated factors, although in many cases no definite cause is apparent. Anemia, constipation and tuberculosis are not etiologic factors. A "congenital erosion" is often unaccompanied by leukorrhea and the latter may be quite unrelieved, when an erosion, its presumed cause, is excised or otherwise "cured." Leukorrhea, varying in profuseness from time to time and associated with prolonged intervals of amenorrhea (or scanty menstruation) and iliac pain or backache, is sometimes encountered in cases of endocrine imbalance of the ovarian or thyro-ovarian type. Fungus infections of the vagina—thrush and yeast—are commoner than is generally believed. Although no case of *Trichmonas vaginalis* vaginitis was encountered by Sharman, he says that the possibility of the presence of the causative parasite in virgins should be borne in mind. A careful evaluation of the history must be made. The patient should be examined under anesthesia; a vaginal fresh-drop (in physiologic solution of sodium chloride) and bacteriologic smears and cultures from the vagina, cervix and uterine cavity should be taken and examined carefully as they may be the source of excessive discharge: this may save unnecessary dilation of the cervix or other intervention. Indiscriminate douching is condemned, not only because it is painful, objectionable and difficult in the virgin, unless a special nozzle or catheter is used, but also because it is almost valueless as a therapeutic measure. The almost routine use of dilation and curettage of the uterus, in an attempt to cure virginal leukorrhea is to be deprecated. On the basis of a thorough and methodical examination of the case, appropriate treatment should rest.

Death of Child Following Induction of Labor with Quinine.—Sadler et al. state that when three doses of quinine (10 grains, or 0.65 Gm.) are given at hourly intervals the peak of urinary excretion and, therefore, probably the maximal concentration in the blood of the mother lies usually between the sixth and twelfth hour after the first dose: there is evidence that wider spacing of the dosage is not advantageous. Quinine is readily excreted into the placenta (1 : 66,000) and liquor amnii (1 : 10,000); it has been found in fetal tissues in strengths (1 : 50,000-1 : 100,000) capable of toxic effect and after intervals that suggest that maternal reabsorption from the fetus is slow and that fetal urinary excretion (1 : 6,000) is limited. Cumulation of quinine in fetal tissues can occur. The presence of meconium in the liquor amnii is more frequent after quinine but there is no evidence that quinine is a stimulant to fetal intestinal muscle; histologic facts suggest intra-uterine asphyxia as a probable cause. Quinine induction does not predispose to postnatal jaundice or defective growth in the infant. From experiments with isolated mammalian uteri they have found that quinine is less reliable as a stimulant in nonpregnant than in pregnant uteri, and even in the latter its action is not constant. Wide variations in time occur between the administration of quinine and the onset of labor. They are of the opinion, from clinical evidence, that quinine is not of any value to induce labor except in fully mature or postmature cases but that in such cases and when labor has commenced it does accelerate and strengthen the uterine contractions, without the risk of causing contraction of the cervix. Although there is experimental evidence to prove that quinine may cause intra-uterine death of the child, statistics show that this risk is not greater than that of stillbirths from undiscovered causes in otherwise normal labors. Postmortem examinations on many of the still-born children following quinine induction showed intracranial injuries. This suggests that there was a mechanical difficulty in delivery and emphasizes the great care necessary in selecting induction of labor as a means of treatment but does not condemn the quinine method of induction.

Blood Sedimentation Test in Gynecology.—One hundred and thirteen cases were examined by Jackson at various stages of pregnancy. Twenty-five were at the second or third month, and of these only one showed an increased sedimentation rate. Of the remaining eighty-eight cases in the later months, only five showed a sedimentation rate of 20 per cent or under after two hours, all the rest being definitely increased. Apparently after the formation of the placenta, certain factors, be they changes in the protein content of the blood, the cholesterol content or the circulation of hormones, come into play which alter the physical and chemical properties of the blood and thereby increase sedimentation. These factors are more evident as pregnancy advances, for, broadly speaking, the sedimentation rate increases with the age of the pregnancy. This may have some bearing on the question of the toxemias of pregnancy, though Jackson has not found the sedimentation rate to be more rapid in cases of albuminuria than in normal cases at the same stage of pregnancy. He has had only one case of eclampsia, and in that patient there was no undue increase in the rate, although in eclampsia the globulin and fibrinogen content of the blood is said to be raised. The one rapid sedimentation rate in this group was in a case of severe pyelitis at the seventh month, with a swinging temperature, in which an inflammatory condition was superimposed on the pregnancy. Thirty-four cases of extra-uterine pregnancy occurred in the series. Twenty-four cases showed only a slightly increased sedimentation rate; ten showed an increased rate. Of these, two cases showed the sac to be definitely infected (confirmed microscopically), two patients had an old-standing pelvic hematocele with adhesions and considerable irritation of the peritoneum, and one patient had a pelvic peritonitis at operation, and her convalescence ran a most disturbed course for some days, until she discharged pus freely by the vagina, after which she slowly improved. Of 220 cases of pelvic inflammation, fifty-eight had a normal sedimentation rate on admission: of these, twenty-three were mild cases of pelvic inflammatory mischief which required merely local medication or some minor manipulation. The remaining thirty-five quiescent cases were treated by means of laparotomy. Among these, nineteen patients had conservative operations, in which the uterus, with the whole or part of the adnexa, was retained. In the remaining cases, the pelvic organs were removed by total or subtotal hysterectomy. Only one of this group had any postoperative complication, this being merely a mild sepsis of the wound. One hundred and sixty-two cases of acute and subacute lesions were investigated. Eighty-eight cases were treated purely conservatively, sixty-seven of which had a "rapid" or "very rapid" sedimentation. There were twenty cases of pelvic cellulitis, of which seventeen came in the "very rapid" group. The results in these eighty-eight cases justified the adoption of conservative methods. In sixty-one cases, the sedimentation rate settled down steadily and the symptoms completely subsided. Five cases required colpotomy for the evacuation of pus, and improved thereafter. Sixteen cases improved as regards symptoms, but the sedimentation rate did not settle to any great extent, though when some of these cases were seen later, the rate was found to be nearing normal limits. Four patients were dismissed improved, but returned later with a recurrence of symptoms, and the sedimentation rate being suitable, underwent operation. Two cases did not improve. Taking the results together, of thirteen patients operated on with a sedimentation rate of over 30 per cent, nine gave trouble after operation, whereas, in the large group of sixty-one cases operated on with a sedimentation rate of under 30 per cent, only four caused any anxiety. Forty-three cases of ovarian cysts were investigated, including three cases of simple fibroma. Thirty-eight of these, of which eight were cases of torsion of the pedicle, had a sedimentation rate within normal limits; viz., from 8 to 19 per cent in two hours. Four patients had an increased rate. Of these, one was found to have an infected adherent friable cyst. A second had a large abdominal swelling tender to palpation—the sedimentation rate was so rapid (59 per cent in two hours) that operation was delayed. The third patient was found to have free hemorrhagic fluid in the peritoneal cavity, foul-smelling and obviously infected with coliform organisms. The ovarian cyst had ruptured, only a little fluid remaining within its cavity. Its wall was necrotic, and the peritoneum and cyst wall were acutely infected. The fourth case was a fibroma of the ovary. The sedimentation rate was rapid. The patient died on the following day, and postmortem examination confirmed the presence of a twisted fibroma. The cause of death, however, was a bilateral lobar pneumonia, which was in the stage of gray hepatization. Fifty-two cases of fibroids were examined, and the results are comparable with the observations in the ovarian cyst group. In cases of carcinoma of the cervix, the sedimentation rate does not appear to be of any great practical value.

Bulletins et Mém. de la Soc. des Chirurgiens de Paris

22: 477-580 (July 4) 1930

Peritonitis from Rupture of Pyosalpinx. Plauson.—p. 479.
Pararenal Tumors. R. le Fur.—p. 484.
Pseudarthroses and Disturbances of Consolidation of Fractures. R. Massart.—p. 497.
Contusion of Kidney. C. Villandre.—p. 501.
Temporomaxillary Ankylosis of Obstetric Origin. L. Dufourmentel.—p. 502.
*Cancer of Bladder: Treatment by Etincelage with Open Bladder. A. Boeckel.—p. 507.
New Classification of Acute Appendicitis: Symptoms and Diagnosis. D. A. Pasqualis.—p. 519
Longitudinal Linear Wound of Common Carotid by Broken Glass. P. L'Hélias.—p. 522.
Pathogenesis of Kummell-Verneuil Syndrome. C. Rœderer.—p. 527.
Phlegmon of Iliac Fossa from Suppurative Epiploitis. Burty.—p. 546.
Chronic Osteitis of Right Tibia Simulating Central Abscess of Bone. A. Trèves.—p. 547.
Tubal Extra-Uterine Pregnancy with Torsion of Internal Part of Tube in Woman of Fifty-Two Years. Dartigues.—p. 554.
Surgery in Obesity. Victor-Pauchet.—p. 555.
Bilateral Tubal Retention of Iodized Poppy-Seed Oil Thirty-Two Months After Injection for Diagnosis. P. Aubourg.—p 566.
Appearance of White Bile in Biliary Passages in Obstruction of Common Bile Duct. S. de Dziembowski.—p. 568
Subtotal Abdominal Hysterectomy for Fibroma After Treatment by Roentgen Rays. Dartiques. p. 579.

Cancer of Bladder: Treatment by High Frequency Current with Open Bladder.—Boeckel describes fourteen cases of cancer of the bladder in which he used etincelage with open bladder. All the patients suffered from hematuria, most of them from cystitis also. In all the cases a cystoscopy revealed a large sessile or infiltrated tumor in various localizations; the immediate operative results were excellent; disappearance of hemorrhages and pain was always effected. The after-effects were more varied. One patient died a month later from embolism; another died eighteen months later of an apoplectic stroke; a third died after eight months from cancerous cachexia. Three of the others were treated too recently to be considered at this time. All of the eight remaining patients are in excellent health, although in a few cases a later cystoscopy revealed a small tumor that was cured by electrocoagulation. Boeckel feels justified, therefore, in advocating etincelage with open bladder as the operation of choice in the treatment of cancer of the bladder in which the tumor is too large to permit of endoscopic electrocoagulation. The method employed is as follows: Under general anesthesia a large cystostomy is made and good retractors, preferably of the Legueu type, are introduced into the bladder so that the smallest details of the vesical cavity are visible. The exuberant portions of the neoplasm are trimmed with curved scissors, usually without the application of forceps or ligatures. Then the high frequency current is used, first electrocoagulation then etincelage with powerful sparks to the large base of the tumor. All the suspected points and all bleeding areas are then sparked. The wound in the bladder is drawn together with several catgut sutures and a Marion drain is left in the cavity. Lavage of the bladder with silver nitrate is performed every day. The Marion drain is not replaced by an indwelling urethral catheter until the urine becomes clear, which usually requires a longer time than after a prostatectomy.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): *1265-1434 (July 21)* 1930. Partial Index

Case of Pulmonary Abscess from Staphylococcus Aureus in Nursling. P. Lereboullet, M. Lelong and F. Benoist.—p. 1284.
*Meningeal Spirochetosis of Hydric Origin: Digital Contamination. J. Troisier and Y. Boquien.—p. 1298.
*Syndrome of Agranulocytosis and Septicemia from Meningococci in a Child of Ten Years. Railliet and Ginsbourg.—p. 1318.
*Pulmonary Gangrene Cured by Tracheal Injections of Iodized Poppy-Seed Oil. H. Eschbach.—p. 1324.

Meningeal Spirochetosis from Digital Injury.—Troisier and Boquien report a case of meningeal spirochetosis in a man, aged 26, a dishwasher in a restaurant. His finger was accidentally pierced by a fishbone, which permitted infection of the hand by the polluted water in which he was forced to work. The spirochetal virus reached the epitrochlear lymph node by means of the lymphatic passages and produced a septicemia with involvement of the meninges, a marked herpetic reaction and inflammation of the anterior portion of the eye. The cerebrospinal fluid as well as the blood showed first a predominance of polymorphonuclears and then a content almost completely lymphocytal. In spite of the marked symptoms of acute meningitis, the disease remained benign. One mild relapse occurred. The virus was eliminated through the urine. The spirochetal origin of the infection was proved both by serodiagnosis and by inoculation of guinea-pigs with the urine of the patient.

Agranulocytosis and Septicemia from Meningococci in a Child.—Railliet and Ginsbourg report the case of a girl, aged 10 years, in whom they observed at first a mild and apyretic purpura accompanied by an ulceration of the buccal mucosa. Later a double hemorrhagic and infectious syndrome appeared. Analysis of the blood from the time fever appeared revealed an anemia with leukopenia and agranulocytosis and at the same time a septicemia that was found to be caused by meningococcus C. The child died after eleven days. With the hemorrhagic symptoms present in this case the syndrome was identical with the syndrome of secondary infectious agranulocytosis described by Aubertin and that of the pure agranulocytosis of Schultz: sex, severe infectious condition at the beginning, ulceronecrotic lesions of the buccopharyngeal mucosa, jaundice, leukopenia with agranulocytosis, fatal evolution in a short time, noticeable enlargement of the hematopoietic organs and marked modifications of the blood cells. The authors believe this case worthy of mention because of the fact that the organism isolated was a meningococcus, whereas earlier cases of this type were caused by *Staphylococcus aureus* or by various streptococci.

Pulmonary Gangrene Cured by Tracheal Injections of Iodized Poppy-Seed Oil.—Eschbach describes two cases of gangrenous pulmonary abscess in which a cure was effected by several intratracheal injections of iodized poppy-seed oil, the first consisting of 15 cc. of the oil and later ones of 20 cc. One patient had already been given antigangrene serum in subcutaneous injections when the iodized poppy-seed oil was administered, but the serum had not produced amelioration. Since surgical intervention in such cases is difficult and dangerous, the author feels that injections of iodized poppy-seed oil should be tried before an operation is performed.

Gynécologie et Obstétrique, Paris

22: *97-192 (Aug.) 1930*

Metastases in Cancer of Cervix. G. Jeanneney, C. Wangermez and Rosset-Bressand.—p. 97.
Biochemical Study of Lipids in Evolution of Follicle and Corpus Luteum. R. Girardin.—p. 110.
*Cholesterol and Bilirubin Contents of Blood of Mother and Child. H. Hinglais and J. Govaerts.—p. 137.

Cholesterol and Bilirubin Contents of Blood of Mother and Child.—Hinglais and Govaerts conducted a series of experiments to determine the dosage and relationships of maternal and fetal cholesteremia and bilirubinemia. They found that although hypercholesteremia in the mother is frequent at term it is by no means a constant phenomenon. They observed a distinctly low cholesterol content of the blood in infants at birth. Although the hypothesis of placental origin of a part of the fetal cholesterol cannot entirely be eliminated, nevertheless the excess of cholesterol in the fetal suprarenals indicates an endogenous source of at least a part of the cholesterol. No direct relationship was found to exist between the maternal hypocholesteremia and the need of the fetus for cholesterol. The excess of cholesterol in the mother is valuable, however, because of its antitoxic and antihemolytic qualities. During the first few days after birth, the infant shows a rapid and marked augmentation of the cholesterol content of the blood. This seems at least partly due to the activity of the suprarenals. Moreover, it was observed that the cholesteremia increased more rapidly when absorption of the vernix caseosa was allowed than when the vernix caseosa was immediately removed by washing. The authors found no basis, however, for the hypothesis of an amniotic origin of the cholesterol of the vernix caseosa. No direct relation was found to exist between the excess of bilirubin in the blood at birth and the low cholesterol content. It was noted, however, that the bilirubinemia, which is the result of hemolytic processes, decreased during the first few days after birth. This is undoubtedly due to the fact that the increased cholesteremia exerts an antihemolytic influence that checks the production of bilirubin. The authors also noted that the bilirubinemia decreased more rapidly in the infants whose vernix caseosa was absorbed and in whom a more rapid augmentation of cholesteremia was observed.

Journal de Chirurgie, Paris

36: 353-544 (Sept.) 1930

*Arterial Encephalography in Diagnosis of Cerebral Tumors. A. Pinto.—p. 353.
Double Joint Fixation in Therapy of Sacrocoxalgia. G. Pieri.—p. 361.
Associated Traumatisms of Spleen and Left Kidney. P. Goinard.—p. 372.

Arterial Encephalography in Diagnosis of Cerebral Tumors.—Pinto describes the method of arterial encephalography introduced by Egas Moniz, which he believes deserves an important place among methods of observation for diagnosis and localization of cerebral tumors. The method is wholly inoffensive; even the attacks of jacksonian epilepsy that follow the injection are now avoided by the administration of phenobarbital in the preparation of the patient. The after-effects of the operation are never unpleasant and are often beneficial. This method of diagnosis often gives particularly definite results, as in the case of tumors of the temporal lobes which cerebral arteriographs reveal by showing marked displacements toward the top of the sylvian group, often accompanied by obliteration of the carotid sulcus. Frontal tumors are shown by curvature of the carotid sulcus and lowering of the initial portion of the sylvian group, and occipital tumors by the evident displacement of the terminal branches of the sylvian group or by the alteration of the circulation in that part of the brain.

Lyon Chirurgical

27: 537-704 (Sept.-Oct.) 1930

*Influence of Ablation of Sympathetic Ganglions on Evolution of Different Forms of Cutaneous Grafts. W. Dobrzaniecki.—p. 537.
Mechanism of Action of Venous Ligatures in Arterial Obliterations. R. Leriche and R. Fontaine.—p. 602.

Ablation of Sympathetic Ganglions and Evolution of Cutaneous Grafts.—Dobrzaniecki describes a series of experiments on male rabbits from 6 months to 1 year of age in which he observed the influence of ablation of the superior cervical ganglion on different forms of autologous and homologous cutaneous grafts. The terrain innervated by this ganglion includes only one side of the head. The grafts were made from two to three days after the ablation of the ganglion because of the excessive transudation and lymphorrhea that occur immediately after the intervention. For the transplantations the experimenters used free grafts of skin, pedicled grafts of skin, dermo-epidermic grafts and injections of suspension of epithelium in physiologic solution of sodium chloride. In all cases both autologous and homologous grafts were used. Free autotransplantation of skin, on the sympathectomized side of the head, produced an edema of the matrix and the graft and an abundant exudation at the edge of the graft, which allowed it to become mobile and to become entirely fused with the surrounding skin. A marked hyperplastic reaction in the epidermis and a neoformation of connective tissue set in immediately, with the result that in a few days the line of implantation was only slightly marked. On the nonsympathectomized side necrosis was produced, exudation was slight, and the graft became dry and thin and adhered to the base. Foreign body granulomas appeared and after twenty-four days the graft was still markedly distinguishable from the matrix. With dermo-epidermic autografts, on the sympathectomized side a cyanosis appeared during the first two or three days. After from five to seven days the cyanosis disappeared and small necrotic patches were observed. About the eighth day microscopic examination revealed a marked desquamation of the surface epithelium and the vessels were dilated and turgescent. On the nonsympathectomized side heavy losses in the grafts were produced, with leukocytic infiltration in the graft and destructive and necrotic lesions of the matrix. Autotransplantation of pedicled skin produced practically the same results as were obtained with free transplantation of skin. Homotransplantation proved a distinct failure with all kinds of grafts. During the first three days the appearance of homografts was identical with that of autografts, but after four or five days necrosis appeared, with degeneration of the epithelial cells. Injection of auto-epithelium produced cicatrization by proliferation of the cells of the papillary layer injected, which was shown macroscopically by the appearance of small epithelial islands at the surface. The cicatrization was much more rapid on the sympathectomized side. Injection of homo-epithelium proved as great a failure as homotransplantation of skin. In addition to the experiments with grafts, autologous and homologous cells were injected between two layers of skin of an intact ear, thus producing a culture of epithelial tissue. The autocells were much better tolerated by the organism than the homocells, the latter producing marked alterations in the blood vessels and connective tissue.

Clinica Chirurgica, Milan

33: 879-986 (Aug.) 1930

The Law Pertaining to Industrial Accidents. B. Rossi.—p. 879.
*Primary Sarcoma of Duodenum. D. Soli.—p. 887.
A Lateral Route for Anesthesia of Semilunar Ganglions. A. Defrise.—p. 899.
Humerus Varus. A. Nicotra.—p. 914.

Primary Sarcoma of Duodenum.—Soli says of the treatment of primary sarcoma of the duodenum: Drugs have not given any results to speak of. Radium and roentgen rays may be used only after surgical intervention, to act on the regional lymph nodes, which are sometimes the point of departure of a recurrence though macroscopically they may appear unaffected. Surgery is the only thing that, thus far, has given satisfactory results, for, if intervention is early and the diseased portion of the duodenum is widely resected, a permanent cure can be expected. Although surgery, in recent years, has made enormous progress in dealing with a duodenal sarcoma, it is often obliged to confine itself to palliative treatment, since, owing to the fact that the disease is not especially painful, the patient is not usually seen until the tumor is inoperable. There are, however, a few patients who, being in the habit of noting even slight disorders of the organism, present themselves to the surgeon in time and recount a history of fitful dyspepsia, slight loss of weight and general weakness. If the clinical and roentgen examination do not give precise results and the patient, in spite of suitable medical care, shows no improvement, an exploratory laparotomy is advisable, which, while harmless, may sometimes save a patient from certain death. When the diagnosis is reached in time, operative intervention is indicated and the technic varies with the location of the tumor. In the supra-ampullar forms, a resection is done, as in cancer of the pylorus, according to Billroth I or II, Polya, or otherwise. In the periampullar forms, the curative problem is more difficult and the prognosis is less favorable. When the development of the tumor makes it necessary to resect a portion of the duodenum, one may have recourse to pyloric exclusion, posterior gastro-enterostomy, cholecystogastrostomy or cholecysto-enterostomy, and implantation of the pancreatic duct in the small intestine. This operation is grave and is nearly always followed by death. The subampullar forms, if they are circumscribed, may be treated by resection and successive suture of the wall; but, if the neoplasm has invaded a certain extent of the duodenum, the same technic is recommended as for the diffuse periampullar forms. In the grave cases with inoperable stenosis the sole treatment is gastro-enterostomy.

Pediatria, Naples

38: 977-1032 (Sept. 15) 1930

*Active Immunization of the New-Born and Nurslings Against Diphtheria. E. Schwarz.—p. 977.
*Affinity Between Measles and Whooping Cough. V. Mikulowski.—p. 984.
Landry's Acute Ascending Paralysis. G. Cuomo.—p. 1005.

Immunization of the New-Born and Nurslings Against Diphtheria.—Schwarz attempted to produce active immunization against diphtheria in two groups of infants. The first group comprised fifteen nurslings aged from 11 months to 2 years to whom three injections of diphtheria toxoid in doses of 0.5, 1 and 1.5 cc., were given. The second injection was given seven days after the first, and the third injection was given two weeks after the second one. The second group comprised ten new-born infants aged from 6 days to 6 months. These received two injections of 0.5 cc. each of the toxin-antitoxin floccules recommended by Schmidt. It has been observed that these doses provoke the formation of the desired antitoxin in the blood of infants aged more than 6 months. The second injection in this group was given seven days after the first. The condition of immunity of infants in both groups was tested before the treatment and fifteen days after the last injection, both by means of the Schick test and by the direct determination of the antitoxin in the blood serum by the intradermal injection of the blood serum to be tested into guinea-pigs. Infants younger than 6 months failed to produce antitoxin. They cannot be considered as protected against diphtheria by active immunization. When they are in danger of contagion, passive immunization should be resorted to, though the protection which it confers is transient. The author believes that the organism before reaching the age of 6 months is in a condition of specific inertia which prevents any reaction to diphtheria antigens with the consequent inability to provoke the formation of diphtheria antitoxin. The organism, however, is able to react with the production of other types of antibodies (though in moderate amounts) after the injection of vaccines other than diphtheria. The provocation of active immunity was more successful in nurslings aged more than 6 months. The production of antitoxin was obtained but at a low concentration.

Affinity Between Measles and Whooping Cough.—Mikulowski states that there is a prophylactic, epidemiologic and clinical affinity between measles and whooping cough. The complication of these diseases causes a high mortality in children aged less than 5 years. During epidemics of measles, the aggravation of pulmonary symptoms in children who have had whooping cough should be considered as caused by measles and the child should be isolated. If the pulmonary disease was so serious that the child died before manifesting clinical symptoms of measles, death should also be considered as caused by measles in a period of incubation, which had not time to appear clinically and had only caused a sudden aggravation of the pulmonary symptoms. Children who were in contact with the patient should be isolated as carefully as if it were a proved case of measles. In nurseries, homes for children, schools and other centers for children, strict care should be taken to avoid contact between children with measles and other children, but especially with those who have had whooping cough. Measles, even in its most attenuated form, causes grave recurrences of whooping cough and the development of new pneumonic foci at the site of the old lesions. For this reason the author does not favor vaccination with immunizing serum against measles among children who have had whooping cough, with the aim to provoke immunity during epidemics. When immunization is indicated in those children, it is advisable to resort to passive (though transient) immunization by means of the serum of convalescents.

Policlinico, Rome

37: 413-460 (Sept. 1) 1930. Medical Section

Torsion Spasm and Occupational Poisoning Due to Carbon Disulphide. G. Quarelli.—p. 413.
Automatism Reflexes in Upper Limbs and Effects of Irradiation. G. Vercelli.—p. 427.
*Tuberculoma of Left Cerebellar Hemisphere. E. Jacarelli.—p. 434.
*Meningeal Hemorrhage. P. Berri.—p. 442.

Tuberculoma of Left Cerebellar Hemisphere.—Jacarelli describes a case of tuberculoma of the left cerebellar hemisphere in which the clinical syndrome, with few general symptoms (choked disk, headache), was characterized by disturbances of equilibrium of the cerebellar type, with a slight motor deficit to the left intermittent nystagmus and severe and early mental disturbances. The necropsy revealed, in addition to hydrocephalus of moderate intensity, a large tuberculoma with peculiar histologic features, surrounded by a vast area of softening, localized in the left cerebellar hemisphere. In the absence of signs of notable cerebral hypertension, the author holds that the grave psychic phenomena, rare in tumors of the cerebellum, were of toxic origin, and due to the absorption of toxins originating in the large necrotic tuberculous focus.

Meningeal Hemorrhage.—Berri describes a case of subarachnoid hemorrhage of the algic type, which developed in a man, aged 31, affected with bronchial asthma, following an injection of an epinephrine preparation, which had provoked an intense reaction of an epinephrine type. It is probable that the hypertensive drug, having penetrated the circulation directly, provoked hyperemia and stasis in the meningo-encephalic vascular region and acted as an occasional cause on a vascular terrain that was abnormally sensitive, owing to constitutional and acquired factors.

37: 1309-1344 (Sept. 8) 1930. Practical Section

Acute Pancreatitis. G. Lucchese.—p. 1309.
*Acute Gastric Ectasia: Case. F. Stipa.—p. 1316.
*Insulin Treatment in Athrepsia in Infants. D. Amici.—p. 1318.

Acute Gastric Ectasia.—Stipa reports a case of acute gastric dilatation. He discusses the etiology and pathogenesis of the disorder and interprets his case as due to a probable paresis from superingestion of food.

Insulin Treatment in Athrepsia in Infants.—Amici describes two cases of athrepsia—one due to gastro-enteritis and the other to unsuitable diet and gastro-intestinal dyspepsia—in patients aged respectively 14 and 4 months. In both cases the beneficent action of insulin was evident not only from the notable increase in weight secured in a short time but also from the rapid improvement in the general condition, and also from the stimulative influence on the appetite and the general activity, which was especially evident in the second case, in which the young patient had fallen into a state of grave vital depression.

37: 1345-1376 (Sept. 15) 1930. Practical Section

Ratio of Oxyhemoglobin to Hemoglobin in Some Types of Anemia. G. Lega.—p. 1345.
*Physical Sign in Seropneumothorax. M. Mazzetti.—p. 1348.
*Fractures Resulting from Traumatic Crushing of Acetabulum with Intrapelvic Luxation of Head of Femur. E. Truzzi.—p. 1352.

Physical Sign in Seropneumothorax.—Mazzetti describes a physical phenomenon not reported before, which consists of a characteristic sound, similar to that produced by percussion on a closed or slightly open cavity, on a leather bottle partially filled with some liquid, or on the stomach of a person with aerophagia, after dinner. The sound is heard while percussion is made along the posterior axillary line and on the scapular line with the aim of determining the level of liquid in the pleural cavity in cases of seropneumothorax. The point of major intensity of the sound is about a fingerbreadth above the level of the fluid. When percussion is made below or above that point, the sound diminishes gradually until it disappears completely when percussion is made either in the portion of the pleural cavity filled with the effusion or in the portion filled with air. The author believes that percussion made at the level of the fluid transmits to its surface vibrations from the thoracic wall, which incite numerous waves of small amplitude on the surface of the fluid. The waves give the metallic tympanism that characterizes the sound. Certain conditions of the thoracic wall as well as of the pleural cavity are necessary in order to produce the sound. Among conditions related to the pleural cavity are the following: The fluid contained in the pleural cavity should be of low density, its amount must be proportional to the volume of air, and the intrapleural pressure must not be less than zero.

Fractures Resulting from Traumatic Crushing of Acetabulum with Intrapelvic Luxation of Head of Femur.—Truzzi makes reference to a particular type of fracture that results from traumatic crushing of the acetabulum, with intrapelvic luxation of the head of the femur. This type of fracture has been known under several different names. Early diagnosis and treatment are important. Both the symptoms and the roentgenograms clearly indicate the presence of such a fracture. On rectal examination the head of the femur is felt inside the pelvis. Passive movements of the leg cause pain and displacement of the head. Roentgen examination gives valuable information. The author explains the arrangement of some dark and light areas seen in the roentgenograms, which are characteristic of the two subtypes of that fracture (the fracture either with partial or with total dislocation of the head of the femur into the pelvis). The author makes reference to the various bloodless and surgical methods used in the treatment of this fracture. He reports a case, in a patient, aged 42, in whom he obtained good results by the application under anesthesia of progressive longitudinal traction on the joint, while on the thigh a traction transverse to the direction of the femur was applied. After combined longitudinal and transverse traction was made, the joint was placed in a cast for some time. When the patient was observed one year after the operation, he showed a complete functional cure.

He can now walk up stairs without a cane. The movements of the joint are normal and he has only a slight limitation of the movements of abduction and of extension, a slight claudication while walking, and a shortening of 0.5 cm. in the leg.

Riforma Medica, Naples

46: 1381-1420 (Sept. 1) 1930

*Is There a Hormone of the Spleen? P. Tremonti.—p. 1383.
Sodium 2-Oxo-5-Iodo-Pyridine-N-Acetate in Blood Following Intravenous Injections. R. Ascoli.—p. 1394.
Hemorrhagic Diathesis and Blood Coagulation. A. Fieschi.—p. 1396.

Is There a Hormone of the Spleen?—Tremonti concludes: The spleen secretes, under normal conditions, a substance that is constantly demonstrable in the splenic blood through its characteristic action on biologic preparations. He thinks that the splenic substance is identifiable with acetylcholine. The acetylcholine normally secreted by the spleen may be interpreted as a splenic hormone, taking the conception of hormone given by Gley. The splenic hormone participates, in all probability, in the regulation of the mechanism of the blood flow through an action that is intimately associated with the epinephrine present in the blood.

46: 1421-1460 (Sept. 8) 1930

*Anticolibacillary Serotherapy: Its Principal Applications in Medicine and Surgery. H. Vincent.—p. 1423.
Changes in Cardiovascular Apparatus in Intoxication Due to Carbon Disulphide. G. Pennetti.—p. 1427.

Anticolibacillary Serotherapy: Its Principal Applications in Medicine and Surgery.—Vincent points out the great diversity of pathologic conditions that may be due to *Bacillus coli* as an infective agent, or to its toxins, both enterotropic and neurotropic. The notable anatomic lesions that certain organs infected by this bacillus present, as, for example, the liver in grave icterus, or, as a result of malignant appendicitis, the kidneys, the myocardium, the spleen, the lungs, the appendix and the intestinal mucosa, show its destructive and local necrosing action. The nature and the colibacillary origin of these have been known for some time. More difficult and less known is the significance of microbic toxins in a number of diseases of the nervous system. It is possible that the Landry syndrome is due to a toxic infection from *Bacillus coli*, at least in certain cases. The blood cultures remain sterile in this disease, but experimentation has shown that rabbits into which the colibacillary neurotoxin is injected develop usually the same symptoms as those observed in the Landry syndrome, and succumb to them. The toxin has often a remote effect in man as well as in animals. This may furnish the pathogenic explanation of certain neuropathic syndromes—psychasthenic or hypochondriac. Serotherapy, the effects of which are so marked in acute infective states (from septicemia to gangrenous appendicitis), may bring about a recovery likewise in a number of other morbid states of obscure pathogenesis, such as those previously mentioned. The fact that antibacillary serotherapy effects a cure in these states gives a demonstration of their nature, which has been hitherto unknown.

Archivos Argentinos de Pediatría, Buenos Aires

1: 301-364 (Aug.) 1930. Partial Index

*Diabetes Mellitus in Children: Treatment. M. Acuña and S. I. Bettinotti.—p. 305.
*Meningococcal Septicemia in Nursling. L. Velasco Blanco and E. Pereda Ramirez.—p. 330.
*Classification and Etiology of Kidney Diseases in Cases Observed During One Year. L. Velasco Blanco and E. Monferini.—p. 340.

Diabetes Mellitus in Children.—Acuña and Bettinotti report three cases of diabetes in children, aged 1 year and 6 months, 2 years and 4 years, respectively. The first two cases were characterized by a grave condition of the patients. The children presented a picture of marked denutrition and grave acidosis. The youngest of the two patients became comatose, but the coma disappeared after the administration of 75 units of insulin divided into three doses and given during twenty-four hours. The oldest nearly reached the same condition of coma. The administration of a proper diet, according to the age of the patient, and also of insulin given with the two principal meals, gave good results. The first of the children has been observed for three years and the second for one year after the acute attack. In both cases the condition of the children has not permitted the discontinuation of insulin therapy. The third case mentioned by the authors (a child aged 4 years) was one of benign diabetes. A proper diet in this case is enough to keep the child in fairly good condition. Sometimes, however, his condition grows worse as a result of intercurrent infections, and the administration of insulin is necessary. In the three cases marked improvement but not total recovery has been obtained. Two of the patients had had a febrile or infectious disease preceding the appearance of the diabetes. No history of familial diabetes or syphilis of the parents was found in these cases.

Meningococcal Septicemia in Nursling.—Velasco Blanco and Pereda Ramírez report the case of an infant, aged 8 months, who after a rhinopharyngitis manifested a purpuric rash in the gluteal region and legs, at the same time that the temperature rose to 40 C. (104 F.). Four days later the purpuric rash took on the characteristics of purpura with large spots and at the same time a complete picture of meningitis developed; the anterior fontanel was closed. The diagnosis of meningococcal septicemia followed by a secondary meningitis was confirmed by lumbar puncture. Polyvalent antimeningococcal serum in a dose of 10 cc. was given intraspinally and intramuscularly. The patient did well and went on to complete recovery.

Kidney Diseases in Infancy and in Youth.—Velasco Blanco and Monferini state that nephrosis is common in children and in young people. Among 4,115 patients of all ages observed by the authors during one year, thirty-three were children, aged from 4 to 12 years, with nephrosis. Only one of the patients presented a mixed type of renal disease (association of nephrosis with nephritis). In the group of patients with glomerulonephritis there was only one case of chronic nephritis, the remainder being cases of diffuse acute nephritis. Streptococcal infections (and next in importance pneumococcal infections) are the most frequent etiologic factors in the development of diffuse or focal nephritis. Of the thirty-three cases reviewed, the nephropathies were secondary in fifteen cases to scarlet fever, in nine to angina, in two to pyodermitis, in one to parotitis, in two to syphilis and in two to pneumococcal infections; in two cases the etiology was unknown. The tonsils and the lymphoid ring constitute the portal of entry of infections that cause lesions of the kidneys; scarlatinal nephritis is due to the angina scarlatinosa rather than to scarlet fever itself.

Archiv für Kinderheilkunde, Stuttgart

91: 161-240 (Sept. 19) 1930

*Open Pulmonary Tuberculosis in Children. F. Moses.—p. 161.
*Goiter in Nurslings. K. Rupilius.—p. 173.
Chronic Idiopathic Edema of Genitalia. A. Kollmann.—p. 186.
*Serum Sickness. W. Balaban.—p. 193.

Open Pulmonary Tuberculosis in Children.—On the basis of his observation of 196 cases of open pulmonary tuberculosis in children at a sanatorium from 1921 to 1927, Moses discusses the prognosis of this condition. The after-examinations included the clinical observations, roentgen picture, sputum examination and a determination of the erythrocyte sedimentation speed. Among the 196 children there were 124 girls and 72 boys. In most of the cases the tuberculosis was of the advanced cavernous type. At the end of 1928, it was found that 13 per cent of the children were cured, 24 per cent were ill and 63 per cent were dead. Of fifty-two children who had been under observation for more than six years, 15 per cent were cured, 5 per cent were ill, and 80 per cent were dead. In young children the condition was extremely fatal. The prognosis seemed to be better in boys than in girls. Of the fifty-two children observed for more than six years, fourteen of the twenty boys had died whereas only five of the thirty-two girls were still alive. The prognosis in children in whom the disease was discovered early at health centers while the health of the patient was still good otherwise was better than the general prognosis.

Goiter in Nurslings and Its Treatment.—Rupilius has observed twenty-eight cases of goiter in nurslings. He states that the most important clinical symptoms of this condition are dyspnea, catarrh of the upper respiratory tract, difficulties in taking food, attacks of asphyxia and various forms of stridor. Enlargement of the thyroid is noticed by the parents in less than one half of the cases. A retrosternal goiter can usually be demonstrated by percussion, by roentgen examination and by intensification of the dyspnea and stridor when the head is markedly extended. In the treatment of the goiter, good results were obtained with small doses (0.01, 0.1, 1 mg.) of potassium or sodium iodide. Recurrences were noted in one fifth of the cases, but in all instances the symptoms disappeared again under iodide medication. In some cases a single small dose of iodide so stimulates the metabolism that the goiter disappears.

Serum Sickness.—Balaban states that the repeated administration of serum increases the allergic condition of the organism and that this is manifested by qualitative and quantitative changes in the character of the resulting serum sickness. The intensity of a first attack of serum sickness is determined by the constitutional characteristics of the organism; in a second attack, however, the terrain is of secondary importance and the most important factor is the length of time that the injections have been given. In a second attack of serum sickness several organ systems may become involved in the disease process; namely, the nervous system, blood and blood vessels and glandular apparatus. When the nervous system is affected the most pronounced changes occur in the vasomotor apparatus and the sensory peripheral nerve endings. The blood changes consist in a marked decrease in the number of leukocytes and in manifestations of anemia. Occasionally changes occur in the blood capillaries, and hemorrhagic exanthems and other hemorrhagic manifestations are noted. In other cases there occurs a reactive inflammation of the lymph nodes and hyperplasia of the liver and spleen. In some cases the effect of the anaphylactic shock on the underlying pathologic condition is negative but in some it is favorable.

Klinische Wochenschrift, Berlin

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Medizinische Klinik, Berlin

26: 1393-1428 (Sept. 19) 1930

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Malaria-Like, Painless Form of Cholelithiasis.—Ehrmann directs attention to a comparatively unknown form of cholelithiasis. The disease becomes manifest in a painless, malaria-like fever. On the basis of careful bacteriologic tests it may be assumed that the disturbance is caused by a temporary colibacillemia. In the treatment, methenamine and quinine have proved helpful.

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Medizinische Klinik, Berlin

26: *1393-1428 (Sept. 19) 1930*

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Treatment of Constipation.—After discussing some causes of sluggishness of the intestine and after differentiating between atonic and spastic constipation, von Noorden discusses the treatment of chronic sluggishness of the intestine by means of a diet containing large amounts of roughage. Then he discusses psychotherapy and massage. In the evaluation of abdominal massage it is pointed out that deep massage is unsuitable, especially in spastic constipation. However, the more superficial and rotating massage has a soothing and spasmolytic effect. Further, the various medicaments are evaluated, first the different oily substances and then the salines. It is stated that yeast has been used in cases of occasional constipation for several decades. The author recalls that bakers' yeast was used for this purpose during his childhood, about sixty years ago. However, the medical literature mentions it only several decades later. Besides the purgative effect, yeast also has nutritional value because of its richness in vitamins. However, yeast that still has fermentative power is not always advisable in cases of functional sluggishness of the intestine because, if it is given in effective quantities, it often causes irritative conditions in the stomach and the intestine. In the last part of the article the constipation of obese persons is discussed and Banting's treatment is recommended. Besides other favorable effects this diet also decreases the cholesterol content of the blood, which is found considerably increased not only in obese persons with constipation but also in other patients with constipation. The author's observations have convinced him that the counteraction of hypercholesteremia effects the cure of many disorders in the sympathetic nervous system, among them also spastic constipation and exudative diathesis. It is also assumed that the favorable effects of certain raw fruit and vegetable diets on inflammatory and trophic tissue disturbances is due to the fact that they counteract hypercholesteremia.

Treatment of Tuberculosis of Skin with Consideration of Dietary Therapy.—Blumenthal first discusses the therapeutic methods that formerly were employed in tuberculosis of the skin. The object of most of them was to remove the local focus of tuberculosis. The advantage of these treatments was that they were rapid. However, they caused unsightly scars and relapses were frequent. In recent years it has been more and more recognized that tuberculosis of the skin is usually only a part of a more generalized infection and that a treatment is necessary that will influence the entire organism. Light therapy, which was introduced by Finsen, was first given as a local treatment. Later, however, it was used as a generalized treatment. Besides tuberculin, preparations of arsenic, copper and gold were employed in tuberculosis of the skin. The most recent addition to the general treatments of tuberculosis of the skin is the dietary treatment that was introduced by Gerson and later investigated and adopted by Sauerbruch and Herrmannsdorfer. The author, in employing this diet, observed that ulcerations healed and lupus nodules disappeared under its influence. In children however, the dietary treatment was not so successful. In one boy the tuberculosis of the skin became even more severe during the diet. It may be assumed that perhaps the diet does not supply all the substances necessary in the growth of children. It was also noted that patients who underwent the dietary treatment showed a susceptibility for infections such as furuncle, folliculitis and staphylococcic foci. The hemograms of the patients were studied at regular intervals and also the sedimentation speed. The results of these tests indicated a steady progress in the healing process. In the last part of the article the author advises that the exclusive dietary treatment should be abandoned. He recommends the dietary treatment and the general light therapy as a foundation in all cases of tuberculosis of the skin. Local treatments should be combined with these general methods, and the local methods may be modified to suit the individual case.

Fate of Patients with Goiter Following Treatment with Ergotamine Tartrate.—Adlersberg and Porges report the results of the after-examination of patients, who, during 1924 and 1925, had been treated with ergotamine tartrate. During the stay at the hospital the *ergotamine tartrate* had been administered subcutaneously. After the patient left the hospital, peroral administration was resorted to. The treatments were given in periods of from two to three weeks. The intervals between were from one to three weeks. At the beginning of each period of treatment one tablet of 1 mg. was given three times daily. Later two tablets were given each time, then three tablets and in some instances even four tablets. Then the dosage was gradually reduced again. During this method of application, toxic effects did not become manifest. The ergotamine tartrate effects a calming and retardation of the heart action and improvement in the general condition. Insomnia gradually ceases and the patient regains weight and strength. While oral administration is harmless, subcutaneous injections of ergotamine tartrate have to be given with great care. Some of the patients continued the treatment for only a short time after they left the hospital, whereas others continued it intermittently until a more recent date. Of twenty-two patients who had received the treatment, thirteen appeared for after-examination. Nearly all of these were cured. Treatment with ergotamine tartrate proved helpful likewise in tachycardia of nervous origin.

Stomach Powder in Treatment of Pernicious Anemia.—Decastello discusses the significance of recent investigations of American authors on the importance of the stomach in the pathogenesis and in the treatment of pernicious anemia. A stomach powder was employed by the author in eight cases of pernicious anemia, and in all of them the results were favorable.

Pernicious Anemia Refractory to Liver Treatment, Favorably Influenced by Desiccated Stomach.—Leschke states that, in cases of pernicious anemia that are refractory to liver treatment, the blood formation can be stimulated by desiccated stomach. It is probable that the liver and the stomach contain two antianemic factors, which are both present in raw (not in desiccated) liver and also in the raw and in the dried stomach. One of these factors is effective in pernicious anemia and the other in secondary anemia. Stomach powder should be given in sufficiently large doses. The patient should receive three times daily about 10 Gm. of the powder together with meat that has been fried only slightly, and with large doses of hydrochloric acid and pepsin.

Aspects of Hypophyseal Cachexia.—Reiche describes the clinical aspects and the results of the necropsy in a case of hypophyseal cachexia. The case is notable for certain unusual aspects. 1. The age of the patient, 65 years, was comparatively high. 2. The course of the disease was protracted, the beginning dating back to the age of 21. 3. The patient did not show the extreme emaciation noted in most cases of hypophyseal cachexia. The disease was characterized by a strong reduction of the bodily energy, mental dulness, falling out of teeth and of hair, and by a dry waxy skin. 4. Eosinophilia was absent. 5. The body temperature and the blood pressure were not reduced, as is usually the case. 6. The sugar metabolism was likewise normal. 7. The patient had attacks of coma. 8. Simultaneously with the signs of hypophyseal cachexia there existed certain symptoms of myxedema.

Wiener klinische Wochenschrift, Vienna

43: *1189-1216* (Sept. 25) 1930

*Treatment of Various Forms of Anemia. A. Herz.—p. 1189.
Actinotherapy of Malignant Tumors in Sweden. G. Forssell.—p. 1194. C'cn.
*Spasm of Coronary Vessels. M. Goldenberg and J. Rothberger.—p. 1197.
Function of Hypophysis in Human Beings. J. Jánossy and F. Magoss.—p. 1201.
Pendulous Fibroma of Skin as Cause of Incorrect Roentgen Diagnosis. E. Marcus.—p. 1204.
Comparative Investigations with Scarlet Fever Serum. E. Gabriel.—p. 1205.
Methods for Examination of Appendix. B. Hoch.—p. 1206.
*Pathologic Anatomy of Tuberculosis. C. Sternberg.—p. 1207.
Treatment of Inflammatory Diseases of Female Genitalia. R. Hofstätter.—p. 1208.

Treatment of Various Forms of Anemia.—Herz stresses that anemia may be caused by various factors. He mentions chlorosis, pernicious anemia, hemolytic icterus, aplastic anemia and hemorrhagic anemia. It is essential that the treatment in the various forms should be decided on the basis of the pathogenesis. The therapeutic methods that are evaluated by the author are: injection of hemostatics, blood transfusion, intramuscular injection of physiologic solution of sodium chloride, medication with iron or with arsenic preparations, liver treatment, desiccated stomach and, finally, extirpation of the spleen.

Spasm of Coronary Vessels.—Goldenberg and Rothberger point out that the opinion is still widely held that an ambulatory attack of angina pectoris is caused by a spasm of the coronary arteries. This theory is understandable when it is considered that it dates back to a time when the diagnosis of a cardiac infarct was not possible intra vitam, and when the symptoms of an acute occlusion of a branch of the coronary arteries was included in the term angina pectoris. The authors consider the cardiac infarct as an independent disease entity, which, in order to differentiate it from an ambulatory attack of angina pectoris, should be designated by a special term; namely, cardiac infarct. It is shown that the theory in which angina pectoris is considered as a result of a coronary spasm is no longer tenable. The following problems were investigated in animal experiments: 1. What are the attendant phenomena of a coronary spasm? 2. Do similar phenomena occur during an ambulatory attack of angina pectoris? In order to answer these questions experiments were made on dogs. Coronary spasms were produced by injections of a preparation of the pressor principle of the posterior lobe of the hypophysis and then the changes in the electrocardiogram were studied. The electrocardiogram following ligation of the left coronary artery showed similar changes. When these electrocardiograms of the animals were compared with those made in human beings during occlusion of a coronary branch, a great similarity was noted. However, the electrocardiogram during an attack of angina pectoris does not show the same changes and it may therefore be assumed that angina pectoris is not caused by a spasm of the coronary arteries.

New Problems in Pathologic Anatomy of Tuberculosis.—Sternberg states that the results of numerous postmortem examinations and of tuberculin tests have proved that the majority of human beings, especially in large cities, pass through a tuberculous infection usually during childhood. The infection is caused by the respired air and the portal of entry is the lung. A placental or intra-uterine infection may occur in some cases; however, it is comparatively rare. The anatomic proof of this early tuberculous infection is the so-called primary complex which involves two factors, the primary focus and the infection of the regional lymph nodes. In the lung the primary focus can usually be detected, but in the other organs, especially in the intestine, the detection is more difficult. Sometimes the primary complex is followed by a dissemination of the tuberculosis or by a generalized infection. In the majority of cases, however, the primary complex heals. If in later life a new infection takes place, this is usually not a reinfection but rather a superinfection, because the primary complex had not yet completely healed. While the primary infection usually causes exudative processes, the secondary infection leads to proliferative processes. The first tuberculous infection is generally in the middle portion of the lung. Formerly it was usually assumed that the apex of the lung was the location of the second infection. Clinicians and roentgenologists now hold that the first postprimary focus is not in the apex but usually develops from an exudative focus in the infraclavicular region, and that the dissemination is not gradual but rather sporadic.

Zeitschrift für Tuberkulose, Leipzig

57: 369-434 (Sept.) 1930

Dissemination of Infection in Chronic Pulmonary Tuberculosis. G. Grundner.—p. 369.
*Acid-Base Balance and Ionized Calcium Content of Blood in Tuberculosis. B. Varela, P. Recarte and J. Esculies.—p. 380.
*Method for Determination of Phagocytosis of Tubercle Bacilli with Phagocytes of Tuberculous Persons. N. Westenrijk.—p. 393.
"Virus Form" of Tubercle Bacillus. J. Ørskov and K. A. Jensen.—p. 398.
*Acne in Pulmonary Tuberculosis. R. Griesbach.—p. 405.

Acid-Base Balance and Ionized Calcium Content of Blood in Tuberculosis.—*By means of the electrometric* method utilizing a quinhydrone electrode, Varela et al. demonstrated that throughout the course of pulmonary tuberculosis the hydrogen ion concentration of the plasma remains within the normal limits, even in the severe evolutionary forms. The total carbon dioxide of the unchanged plasma varied between 51.3 and 65.3 per cent by volume, fluctuating within narrow limits about an average normal value of 57.4. In none of the patients examined was there a tendency to alkalosis. Both the total calcium of the serum and the fraction of ionized calcium remained within the normal limits. During a Sauerbruch-

Herrmannsdorfer-Gerson mineral diet treatment the acid-base balance in the blood did not fluctuate and the total calcium and the ionized calcium remained within the normal limits.

Method for Determination of Phagocytosis of Tubercle Bacilli with Phagocytes of Tuberculous Persons.—Westenrijk determines in vitro the phagocytosis of tubercle bacilli by phagocytes of tuberculous persons. By means of a Pasteur pipet ten drops of blood are removed from the patient's finger, mixed with an equal quantity of a 1.5 per cent solution of sodium citrate, and centrifugated; the excess of citrate serum is then removed and the remainder washed twice in a centrifuge with an equal quantity of sodium chloride solution. Three drops of the remaining thin layer of leukocytes are transferred to a small tube by means of a pipet and to it is added an equal amount of standardized emulsion of bacilli. The mixture is allowed to stand an hour in an incubator at 38 C. and then is carefully shaken and some of it is transferred to a slide. The preparation is fixed by adding an excess of methyl alcohol and allowing it to stand in an incubator until dry. It is then stained with Ziehl's carbolfuchsin solution, decolorized with a 2.5 per cent solution of sulphuric acid and dilute alcohol and stained again with a saturated solution of methylthionine chloride. The degree of phagocytosis is determined by counting the number of phagocytes that have ingested tubercle bacilli, regardless of whether they contain only one or several bacilli. At least 200 phagocytes, chiefly the polymorphonuclears, should be counted; in children in whom only a few polymorphonuclears are present, one should include in the count the large mononuclears that contain an immature nucleus.

Acne in Pulmonary Tuberculosis: Etiology.—Griesbach does not accept the theory that the frequent occurrence of acne in persons with pulmonary tuberculosis can be explained on the basis of the increased perspiration and the seborrheic terrain. He believes that as a result of a suddenly increased dissemination of tubercle bacilli, their toxins and metabolic products, the defense power of the reticulo-endothelial system is mobilized at once and responds. Since the reticulo-endothelial apparatus, however, is the place of formation not only of purely specific antibodies but of nonspecific ones, it may be so weakened by its response to the toxin of the tubercle bacillus that it no longer furnishes sufficient antibodies against other infectious noxae. Staphylococci in the skin, which otherwise would not cause a disturbance, now multiply rapidly and produce acne.

Zentralblatt für Gynäkologie, Leipzig

54: 2433-2496 (Sept. 27) 1930

*Predisposition to Edema During Pregnancy. E. Baráth and C. von Magyary.—p. 2434.
*Rare, Late Complications Following Ligation of Vena Cava. E. Fels and H. Bettinger.—p. 2439.
Leukemia During Pregnancy: Indication for Interruption of Pregnancy and for Permanent Sterilization. H. O. Neumann.—p. 2443.
Severe Psychosis Following Spinal Anesthesia on Account of Ileus. H. Hellendall.—p. 2451.
Nature and Technic of Placenta Air Test and Limits of Its Applicability. H. Franken.—p. 2456.
Isolated Tuberculosis of Myometrium. C. Nemrow.—p. 2462.
*Hoehne's Sign as Only Indication in Atypical Rupture of Uterus. V. Lazarević.—p. 2466.

Investigations on Predisposition to Edema During Pregnancy.—Baráth and von Magyary point out that hydropic conditions occur frequently during pregnancy. The dropsy of gravidity with its symptoms of edema, albuminuria, cylindruria and hypertension is generally considered to be the result of renal disorders. However, examination of pregnant women with slight edema revealed that the renal function was normal, and gynecologists have expressed the opinion that the predisposition to edema during gravidity is probably due to extrarenal factors. Experiments were made on pregnant women with and without edema. By means of an intradermal injection of 0.2 cc. of an 0.8 per cent solution of sodium chloride it was determined whether the resorption of the wheal, which in normal persons requires from fifty to sixty minutes, is more rapid in pregnant women. The various protein constituents of the blood were likewise determined. The fibrinogen content was considerably increased, and the albumin-globulin quotient was decreased. Parallel with this there was a decrease in the swelling capacity of the blood colloids and an increase in the water resorption capacity of the tissue colloids. The authors give tabular reports of their tests and conclude that during the last months of pregnancy there is an accelerated resorption of intradermally injected solutions of sodium chloride, and frequently also a shifting of the blood proteins in the direction of the coarsely dispersed protein constituents, and a decrease in the colloid osmotic pressure of the blood serum. Since renal disturbances do not exist it may be assumed that the slight edema in pregnant women is due to an increased water resorption capacity of the tissue colloids during the last months of pregnancy.

Complications Following Ligation of Vena Cava During Puerperal Pyemia.—Fels and Bettinger state that the opinions regarding the therapeutic value of ligation of the vena cava in puerperal pyemia are still divided. The authorities disagree likewise as to which is the most opportune time for the ligation, whether it should be done early or whether an expectant attitude is advisable in the beginning. The authors do not oppose ligation of the vena cava but consider it of value in some cases of puerperal pyemia. The case of a primipara, aged 29, is reported because it shows the danger of a complication that so far has not received sufficient attention. The ligation performed in this case at first appeared to be successful. Then, twenty-three days after the operation, the patient suddenly developed high fever and died shortly after. The necropsy revealed that the silk thread used for the ligation had cut the vessel and a hematoma had formed. Because even the thickest silk thread does not eliminate the danger of cutting the vessel, it is perhaps advisable to use different material for the ligation. The use of catgut is not advisable because it is too quickly resorbed. A linen ribbon such as is used for ligation of the umbilical cord might be helpful; however, the foreign body irritation might be too great. The use of a strip from the fascia lata of the thigh appears to be most advantageous, because it is not resorbed too quickly and may be made as wide as seems necessary.

Hoehne's Sign as Only Indication in Atypical Rupture of Uterus.—Lazarević gives the clinical history of a woman, aged 25. The labor was difficult because of an abnormal position of the fetus. When injections of hypophyseal preparations did not stimulate the contractions sufficiently, the patient was brought to the hospital. Here hypophyseal preparations were again administered, but now they had no effect at all. The complete absence of uterine contractions during birth, in spite of repeated administrations of hypophyseal preparations (Hoehne's sign), was taken as an indication of a rupture of the uterus although there was no shock effect and there were no other signs indicating rupture. The delivery was completed by laparotomy. It was found that the uterus had ruptured. The tear was 12 cm. long. The entire placenta and nearly one half of the comparatively large male fetus were in the peritoneal cavity. The fact that the woman had felt a severe pain while being brought to the hospital makes it appear probable that the rupture occurred then. The author reports this case in order to direct attention to the diagnostic value of Hoehne's sign.

Azerbaydjanskiy Meditsinskiy Jurnal, Baku

1: 1-115, 1930

*Culture of Plasmodium Malariae. Aga-Han.—p. 17.
Toxicology of Benzene and Its Derivatives. P. P. Popov.—p. 18.
*Experiments with Sedimentation Test. U. E. Levine.—p. 22.
Helminthiasis in Gandji. A. S. Chergeshtov.—p. 33.
Liver Abscess with Multiple Metastatic Abscesses in Brain. A. D. Mustafaev.—p. 37.
Helminthiasis in Lenkoransky District. S. Tuaev and M. Volkovich.—p. 41.
Epidemic Encephalitis in Azerbaydjan. M. M. Melikov.—p. 48.
Acromegaly: Case. S. Adjalov.—p. 58.
Late Effects of Poisoning with Toxic Gas: Case. M. E. Efendiev.—p. 63.
Climate Neuroses with Symptoms of Positive Heliotropism: Two Cases. P. Y. Sokolov.—p. 66.
Analysis of Manoilov's Sex Test. N. A. Suhov.—p. 76.
Prostitution in Baku. D. S. Hydadov.—p. 79.

Culture of Plasmodium Malariae.—Aga-Han's experiments with the cultivation of *Plasmodium malariae* on various culture mediums showed that the organism grows well in vitro only in the presence of partially hemolyzed erythrocytes. He used distilled water as a hemolyzing agent and recommends a culture medium consisting of human serum 2 cc., neutral distilled water 8 cc. and erythrocytes 2 cc. The optimal temperature for the culture was 37 C., and the blood specimens were taken from the patients during the period of the chill or just at the beginning of the rise of the temperature, when both macrogametes and microgametes may be secured. He never failed to get a good growth on this culture medium.

Experimental Study of Theories of Sedimentation Test.—Levine studied experimentally the rôle of the erythrocytes and of the blood plasma as determining factors in the production of the sedimentation test. In the first series of the experiments, a 0.9 per cent solution of sodium chloride was gradually added to the specimens of blood from patients with various diseases. The sedimentation test was accelerated in the beginning, in the weak (1 to 10) dilutions of the blood with the sodium chloride, but gradually slowed considerably with the increase in the dilution of the blood. In the second series, the erythrocytes from the patients with various diseases were thoroughly washed from all traces of the blood plasma and placed in suspension in the 0.9 per cent solution of sodium chloride, in the same proportion as they were in their respective blood. The sedimentation test was slowed to the highest degree and became practically the same in all suspensions of the erythrocytes from the patients with various diseases. However, when the erythrocytes were removed from the sodium chloride solution and replaced in their respective blood plasma, the sedimentation test assumed the individual characteristics of the various diseases. For instance, in a healthy person, in the blood it was 3.5; in the suspension of the erythrocytes in the sodium chloride solution it was 1.25 and after the addition of the erythrocytes to the plasma it rose to 3.2. In the same order in scurvy it was: 51 : 1.25 : 44; in gonorrhea, 7.5 : 1.2 : 7.2; in syphilis, 47 : 1.3 : 44; in eczema, 24 : 1.2 : 20.1, and so on. From this the author draws the conclusions, first, that Stokes's *mechanical theory of the sedimentation test was disproved by* the fact that the sedimentation was slowed after the dilution of the blood with the solution of sodium chloride, and not accelerated as it should have been according to this theory; and, secondly, that the determining factor in the sedimentation test is the blood plasma, because the sedimentation test in the suspension of the erythrocytes washed from their respective plasma, in the solution of sodium chloride, was the same in the patients with various diseases. The fact that, after the erythrocytes were removed from the sodium chloride solution and replaced in their respective blood plasma, the sedimentation test showed again the differences characteristic for each disease, proves that the pathologic changes in the blood plasma cause secondarily some reversible physicochemical changes in the erythrocytes conserving the electrical charges carried by the erythrocytes and the phenomena of adsorption, as it was suggested by the third series of experiments, in which the volume of the precipitated erythrocytes was measured under the same conditions as in the first two series.

Acta Radiologica, Stockholm

11: 347-453 (Sept. 30) 1930

Curietherapy: Dosage: New Method of Measuring. J. Murdoch.—p. 350.
*Case of Generalized Osteitis Deformans (Paget) with Secondary Malignant Degeneration. V. Genner and H. Boas.—p. 398.
Roentgen Examination of Recruits for Swiss Army. H. E. Walther.—p. 411.
Experimental Study of Effects of Thallium on Rats and Mice. R. Baumann.—p. 425.
*On Great Gastric Retention and Dilatation of Stomach in Cases of Gastroduodenal Ulcer and Cancer of Stomach. T. Klason.—p. 444.

Generalized Osteitis Deformans (Paget) with Secondary Malignant Degeneration.—Genner and Boas report a typical case, in a man, aged 51, of about thirty years' standing. Its course had not been attended with any disturbance of his general health or fitness for work. It was not discovered until he was admitted to the hospital to be treated for an intumescence of his right shoulder, the result of an injury to that region, sustained a few weeks previously. The roentgen examination then disclosed the fact that the swelling was due to a malignant neoformation in the osseous tissue there, and that he was suffering from a generalized form of osteitis deformans (Paget), with typical deformation of some of the bones, especially those of the lower extremities (saber legs). He died a few weeks later, as a result of the secondary, new malignant development, and the necropsy confirmed the clinical and roentgen diagnosis, revealing extensive sarcomatous destruction of the right scapula, clavicle and part of the head of the humerus, with large hemorrhagic tumor masses. Besides, the patient had syphilis, acquired when he was 18 years old. It had been poorly treated, and the Wassermann reaction was still strongly positive. Another feature of the case was the pronounced deafness of the patient during the last few months of his life, evidently a result of the osteosclerotic processes characteristic of the disease.

Dilatation of Stomach in Cases of Gastroduodenal Ulcer and Cancer of Stomach.—Klason investigated the frequency with which much retention and dilatation of the stomach occur in cases of gastroduodenal ulcer and cancer of the stomach. In 451 cases of ulcer, this complication was present 39 times. Of the ulcers, 258 were of the duodenal variety and in these cases great gastric retention occurred 28 times. The gastric ulcers numbered 193 and the complication occurred in 11 cases. In 201 cases of cancer of the stomach great retention and dilatation of the stomach were found only in cases of cancer of the canalis, being present in 30 cases out of 97, and in 14.3 per cent of all cases of cancer of the stomach.

Ugeskrift for Læger, Copenhagen

92: 865-886 (Sept. 1) 1930

*Positive Pirquet Reaction in First Three Years of Life. R. Kjer-Petersen and J. Ostenfeld.—p. 865.
*Undulant Fever: Case. C. Ebskov and H. Harpøth.—p. 872.
*Insulin in Treatment of Undernutrition. H. H. Jacobsen.—p. 875.

Positive Pirquet Reaction in First Three Years of Life.—Kjer-Petersen and Ostenfeld's material from tuberculosis clinics comprise 293 cases with a positive reaction. In 209 cases there was open tuberculosis in the home and in only forty cases was the home free from sources of infection. Examination at least five years later showed that of the fifty-three patients with a positive Pirquet reaction in the first year twenty had died (nine before the end of the third year); nineteen of tuberculosis, and thirty-two were well; of the ninety-one in the second year fourteen had died, thirteen of tuberculosis, and seventy-four were well; of the 149 in the third year fifteen had died, thirteen of tuberculosis, and 133 were well. They conclude that in the case of a child in the second or third year with a positive Pirquet reaction and no other symptoms, expectant treatment is justified when the home conditions are hygienic and examinations are made at suitable intervals; in the case of a child in the first year with a positive reaction, particular attention is required to determine whether special treatment is necessary or continued control sufficient.

Undulant Fever: Case.—In the case reported by Ebskov and Harpøth, undulant fever concurred with an anemia of the pernicious type, hemolytic jaundice and chronic nephritis with aortic insufficiency. The diagnosis was confirmed on necropsy. The nephritis is thought to have been primary and, together with the cardiac disorder, of far earlier origin than the undulant fever. The hemolytic jaundice is assumed to have been due to the infection.

Insulin in Treatment of Undernutrition.—Jacobsen treated twenty-one patients with small doses of insulin and extra meals, by which insulin shock was prevented. No deleterious effects were noted. In his opinion the method is adapted for use in private practice.

92: 887-906 (Sept. 18) 1930

*Treatment with Sauerbruch-Herrmannsdorfer Tuberculosis Diet in Surgical Tuberculosis. M. Nathan.—p. 887.
Sign System in Description of Disorders of Joints, Particularly Rheumatic Disorders. H. Jansen.—p. 892.
*Is Incidence of Chronic Polyarthritis Increasing? P. Borgbjærg.—p. 893.

Treatment with Sauerbruch-Herrmannsdorfer Tuberculosis Diet in Surgical Tuberculosis.—Nathan's impression is that this diet, which was used as a supplementary treatment in the eleven cases reported, was of considerable value in several instances and seemed particularly effective in alleviating the subjective symptoms.

Is Incidence of Chronic Polyarthritis Increasing?—Borgbjærg's material from the medical division of Bispebjerg Hospital from 1914 to 1928 shows a gradual increase in the chronic forms of polyarthritis and slight shiftings, mainly pointing to a decrease, in the acute forms.

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THE CLINICAL MANIFESTATIONS OF PRIMARY BRONCHIAL CARCINOMA *

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This report is based on an analysis of the clinical features presented by sixty-one patients with primary carcinoma of the bronchus in whom the diagnosis was verified by histologic examination of tissue removed bronchoscopically (thirty-six cases), surgically (eight cases) or post mortem (twenty cases). In this group were fifty men and eleven women, a ratio of 4.5 men to 1 woman. The youngest patient was a woman, aged 24, and the oldest a man, aged 73. Only two patients were under 35 years of age (24 and 27). Twenty-seven patients (44.2 per cent) were between 35 and 45. The predominance among men, the incidence after the age of 35, and especially in the decade between 35 and 45, are factors of significance in diagnosis.

The increasing clinical interest in the early diagnosis of primary carcinoma of the lung has been stimulated by the recognition that origin from the larger bronchi occurs in the vast majority of cases, and, therefore, skilful bronchoscopy becomes, in selected cases, the most useful procedure in making a diagnosis.[1]

Weller[2] states that the type of carcinoma that occurs in the hilus, comprising perhaps 90 per cent of all cases of carcinoma of the lung, is practically always bronchiogenic.

The right side was involved in thirty-four and the left in twenty-six instances among the sixty-one patients in whom it was possible to locate the origin of the neoplasm with reasonable accuracy.

CLINICAL MANIFESTATIONS

No set description can be given, since the clinical picture varies greatly, depending on the following factors: (1) the location of the neoplasm and the rapidity of its growth; (2) the degree of bronchial obstruction produced; (3) the presence of secondary infection and suppuration; (4) the pressure on adjacent structures; (5) the occurrence of pleural involvement, which is not infrequently associated with effusion and, (6) the influence of local and general metastases. These factors in varying combinations produce many dissimilar clinical pictures, which may closely resemble other common and rare diseases of the respiratory tract.

The onset of symptoms is usually insidious but may be sudden with pain in the chest, pulmonary hemorrhage, dyspnea, or symptoms resembling an acute bronchitis. Among approximately one third of the patients the onset was not unlike an acute respiratory tract infection, the patient stating that the initial features were "a cold," "cough with fever," "a cough with pain in the side," "acute bronchitis" and "pneumonia." While the early symptoms are usually bronchial, many patients complain early of pain in the chest, which varies in severity from an indefinite discomfort to that resembling acute pleurisy. The relative frequency of the local symptoms in sixty-one patients was as follows: cough, 88 per cent; expectoration, 67 per cent; pain, 72 per cent; hemoptysis, 45 per cent; dyspnea, 50 per cent. The general symptoms of weakness and loss of weight follow, as a rule, the occurrence of the local symptoms and were sufficiently evident as to be noted as a part of the present illness by the patient in 80 per cent of the cases.

The cough does not present characteristic features. It usually occurs early and may be continuous but is not infrequently characterized by periods of improvement and aggravation which are attributed by the patients to attacks of bronchitis. It may be so severe as to interfere with sleep. Wheezing is common and has been mistaken for asthma. In the later stages with extension of the growth and pressure on surrounding structures the cough may resemble that of aortic aneurysm, which may be suspected, especially when hoarseness occurs as a result of involvement of the recurrent laryngeal nerve.

Hoarseness or huskiness of the voice was noted at the time of admission in five patients (8 per cent).

The expectoration may be absent, scant and mucoid, or profuse and purulent in character. Profuse and purulent sputum, suggestive of pulmonary suppuration, was present in one third of our patients. The "currant-jelly sputum" is rarely encountered, and I have seen no cases in which this type of sputum had any diagnostic significance. While careful search of the sputum has been stated in reported cases to reveal occasionally fragments of tumor tissue, I have not been able to make a diagnosis by this method in any of my patients. Tubercle bacilli were not found in any of the numerous specimens of sputum examined, and no evidence of clinically active tuberculosis was found to be associated with the new growth in the present series of patients.

Hemoptysis occurred in approximately one half of the patients. It may occur early or late and varies in amount from streaking of the sputum to frank hemorrhage. In some patients the frequent recurrence of bleeding produces a marked secondary anemia. A large fatal hemorrhage is rare. I cannot recall a death among my patients due to this cause.

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* From the Department of Medicine, Jefferson Medical College.

* Read before the Association of American Physicians, Atlantic City, May 6, 1930.

[1] McCrae, Thomas; Funk, E. H., and Jackson, Chevalier: Primary Carcinoma of the Bronchi, J. A. M. A. **89**: 1140 (Oct. 1) 1927.

[2] Weller, C. V.: Primary Carcinoma of the Lung, Arch. Path. **7**: 478 (March) 1929. This article contains an excellent bibliography

Mild dyspnea on exertion is common, the more marked forms occurring with bronchial occlusion, or complicating pleurisy with effusion. It may be the first or principal symptom, but more often it develops during the course and in association with other local symptoms. Cyanosis parallels the dyspnea and is explicable by the associated pulmonary complications; marked cyanosis is usually a late event in the disease.

Pain in the chest is not only a common but frequently an early complaint of the patient. In this series it was next in relative frequency to cough. The pain is variously located in the chest and is described as sharp or dull, intermittent or continuous, and tends to become worse as the disease progresses. Dysphagia is usually a late symptom.

The general symptoms, fever, weakness, loss of weight and pallor, are variable in their time of appearance. They usually occur late in the disease. Fever was present in 55 per cent of the sixty-one patients at some time while under observation. It is due to associated bronchitis, pulmonary suppuration, bronchiectasis, bronchopneumonia and pleurisy. The fever may be slight or marked with remissions and intermissions associated with chilliness and sweats. The latter occur especially with abscess formation. A rapid pulse is associated with the pyrexia. In the late stages, cachexia may be pronounced.

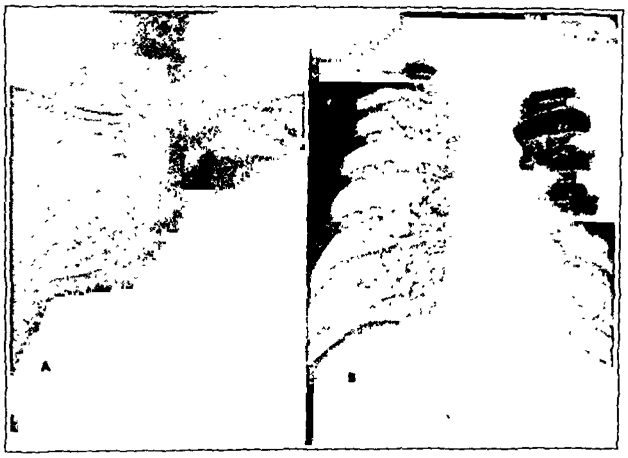

Fig. 1 (case 1).—*A*, obstructive atelectasis of the left lung due to neoplastic obstruction (complete) of the left main bronchus. *B*, expansion of the lung within forty-eight hours after the bronchoscopic removal of obstruction by Dr. L. H. Clerf. The signs of obstructive atelectasis were typical; the cause was not definitely known until the histologic examination of the bronchoscopically removed tissue revealed new growth. (These and the following roentgenograms are by W. F. Manges and J. T. Farrell, Jr.)

EXTRATHORACIC METASTASES

Numerous writers have discussed the frequency of metastases to the various organs, especially to the nervous system and skeleton. Any organ may be involved. An early and significant finding clinically is the metastases to the supraclavicular nodes, which, when small, may easily be overlooked. In most instances, in my experience among patients who came to the chest clinic, extrathoracic metastases were late phenomena. Distinct evidence of metastases to the nervous system was present in eight cases (cerebral six, spinal two), or 13 per cent, and to the abdominal organs in four cases of the group of sixty-one patients while in the hospital. There is an important group of patients in whom the extrathoracic metastases obscure the primary bronchiogenic carcinoma. In this connection may be quoted the report of Fried and Buckley,[3] who found central nervous system metastases in fifteen of thirty-seven patients with bronchiogenic cancer. In eleven of the fifteen patients a diagnosis of primary tumor of the brain was made and the bronchiogenic tumor was overlooked. An intracranial operation was performed in eleven patients and a metastatic tumor was removed in ten instances. Fried and Buckley state that when a person of middle age has an abrupt onset of symptoms and signs of a rapidly developing intracranial lesion, a metastatic cerebral lesion should be thought of and that the lungs are the most common site of the primary lesion. A metastasis to the brain may be mistaken not only for a rapidly growing glioma but also for a vascular lesion or an encephalitis.

Among four patients in the series with marked abdominal symptoms due to metastases, in two instances the abdominal symptoms preceded the occurrence of respiratory symptoms, and in one of these an abdominal operation had been performed before admission.

EFFECTS OF PRESSURE

The presence of dilated veins of the head and neck, upper extremities, and over the thorax and abdomen, of laryngeal paralysis, dysphagia and inequality of the radial pulses are usually late manifestations in the course of the disease.

THE PHYSICAL AND ROENTGEN OBSERVATIONS

There are no pathognomonic thoracic signs and those found are in varying combinations dependent on the influence of the various factors mentioned. There may be no abnormal physical observations. Usually, however, the early signs are those of bronchial irritation. Wheezing is common. Unilateral limitation of expansion is the most common sign. In most instances the signs are those of the associated pathologic conditions, bronchitis, obstructive atelectasis, obstructive emphysema, abscess, bronchiectasis, and pleurisy with or without effusion.

The roentgenologic evidence may be most valuable in determining the presence and location of the tumor, especially when the hilar mass is sufficiently large and not obscured by the many secondary pathologic changes that may occur in the lung and pleura (figs. 1 to 6). When these are present the roentgen picture may resemble numerous other pulmonary lesions.[4]

BRONCHOSCOPIC EXAMINATION

The diagnostic significance of the bronchoscopic observations has been described by Chevalier Jackson.[1] Briefly, it may be stated that this procedure, which represents the most recent and important advance in thoracic diagnosis, is the only method by which an early diagnosis of bronchial new growth can be made with reasonable certainty in the vast majority of patients. Without bronchoscopy, the diagnosis must often remain in doubt until extrathoracic metastases occur or tissues are removed at operation or at autopsy. Bronchoscopy has taught physicians to suspect new growth more frequently, especially in adults with obscure pulmonary lesions, particularly when the signs of bronchial obstruction are present.

DIAGNOSIS

The two essentials are (1) to recall the possibility of bronchiogenic carcinoma in adults with obscure pulmonary disease, and (2) to make a complete study, including a consideration of the history, physical signs, sputum, roentgenographic and bronchoscopic observations. There are certain conditions that cause confusion but a complete study should exclude them in the majority of cases.

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[3] Fried, B. M., and Buckley, R. C.: Primary Carcinoma of the Lungs: IV, Intracranial Metastases, Arch. Path. 9: 483 (Feb.) 1930.

[4] Farrell, J. T., Jr.: Roentgen Diagnosis of Intrathoracic Neoplasms, Radiology 13: 1 (July) 1929.

Tuberculosis.—The chronic cough, expectoration, hemoptysis, fever and wasting are most frequently mistaken for tuberculosis, especially when the bronchiogenic cancer invades the upper lobe. Basal growths with the apexes clear cause less difficulty. The sputum studies are important, and it is a good rule to question the diagnosis of tuberculosis when in the presence of a persisting gross lesion the sputum contains no tubercle bacilli (fig. 5).

Bronchial Obstruction.—The recognition of the presence of bronchial obstruction and the associated lesions of atelectasis, emphysema, bronchiectasis and abscess are secondary in importance to the determination of the cause of the obstruction. Foreign bodies and aortic aneurysm may be recognized by the history, physical signs and roentgen observations. On the other hand, neoplastic obstruction, while frequently suspected in adults of the cancer age with pulmonary lesions of obscure etiology, may often fail to be recognized unless bronchoscopic studies are made (fig. 1). Benign new growths and obstruction due to inflammatory changes and cicatricial stenosis can be differentiated only by bronchoscopy. Aortic aneurysm should be excluded before bronchoscopy is done. Carcinoma of the esophagus, as a result of the overflow of its contents and pressure on or penetration into the air passages may give rise to distinct respiratory symptoms. In primary bronchial cancer the reverse process may produce esophageal symptoms. A careful study of the order of the appearance of symptoms and of the swallowing function and the roentgen and direct endoscopic examinations should establish the diagnosis. Tracheal cancer may give rise to symptoms not unlike those in bronchial involvement, and only by bronchoscopy can differentiation be made.

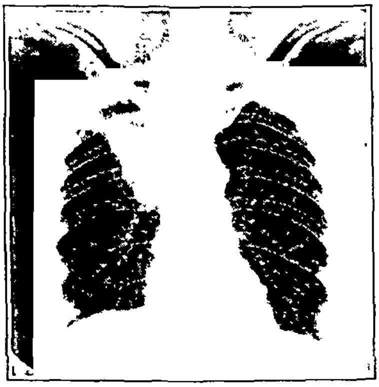

Fig. 2 (case 2).—Primary carcinoma of the bronchus. Nodular mass at the right hilus with atelectasis of upper portion of right lung due to bronchial obstruction by a neoplasm completely occluding the bronchial lumen.

Pulmonary Abscess.—The differentiation of noncarcinomatous from carcinomatous pulmonary abscess may present unusual difficulties. Several aspects of the problem involved are given in the brief case reports in the legend of figure 3. Generally speaking, a pulmonary abscess of obscure etiology occurring in a man past 30 or 35 should be suspected of a malignant origin. Bronchoscopy will usually settle the diagnosis. That errors may occur in spite of the most complete study is exemplified by the following patient: A man, aged 51, had been ill for one year with cough, increasing expectoration, dyspnea, huskiness of the voice, and loss of weight. The physical and roentgen observations indicated an extensive lesion in the lower portion of the right upper lobe. The fingers were clubbed. The roentgenogram showed a distinct large abscess cavity with a fluid level not unlike that shown in figure 3. No tubercle bacilli were found in the sputum. A bronchoscopic examination by Dr. L. H. Clerf revealed stenosis of the right bronchus, probably neoplastic, and a histologic study by Dr. B. L. Crawford revealed carcinoma. Autopsy revealed a primary carcinoma of the head of the pancreas with metastases to peribronchial nodes and to various other organs. The pulmonary abscess was secondary to a malignant bronchial obstruction, which in turn was secondary to the primary abdominal neoplasm. However, carcinomatous pulmonary abscess is associated in the vast majority of instances with primary rather than secondary neoplasms of the bronchus and lung.

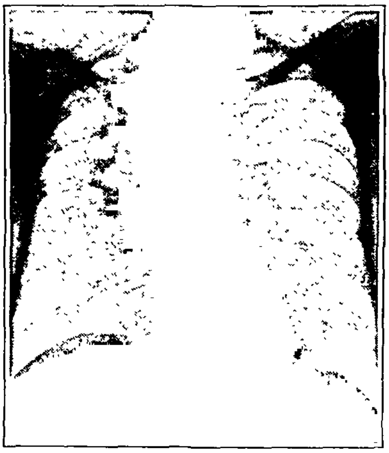

Fig. 3 (case 3).—Carcinomatous abscess, with a cavity presenting a fluid level in the right upper chest, in a man, aged 51, who had had a chronic cough with scant mucoid expectoration since he had had influenza twelve years before. Seven months before, a severe pulmonary hemorrhage occurred, and since then the cough had become more severe and productive of a fetid mucopurulent sputum. Other symptoms were pain in the right side of the chest, fever, weakness and loss of weight. The fingers were distinctly clubbed. The sputum showed no tubercle bacilli. The physical signs and roentgen observations on admission indicated an abscess with cavitation in the upper part of the right lung. The left lung was clear and there were no demonstrable extrathoracic lesions. Clinically and bronchoscopically, the condition was considered to be pulmonary abscess. At operation, Dr. J. B. Flick, suspecting new growth, removed a section of tissue which Dr. B. L. Crawford found to be a squamous-cell carcinoma. At autopsy a primary cancer of the bronchus (epithelioma), pulmonary abscess, local metastases, but no extrathoracic metastases were found. By contrast, another patient with a similar history and observations was not studied bronchoscopically because all the available evidence seemed to point clearly to a pulmonary abscess. At operation Dr. Flick suspected neoplasm and the tissue removed showed squamous-cell cancer. At autopsy the neoplasm was found to originate from the left main bronchus, and in retrospect it was evident that a positive preoperative diagnosis could have been made had a bronchoscopy been done.

Syphilis.—Pulmonary syphilis is rare, but it may simulate bronchopulmonary new growth. The history, atypical pulmonary signs, concomitant evidence of syphilis elsewhere, the positive Wassermann reaction and the therapeutic test are criteria useful in the diagnosis of pulmonary syphilis, which is usually made by exclusion. The two conditions may coexist, i. e., bronchial cancer and latent syphilis. Curiously, in the series of sixty-one patients the routine Wassermann test was positive in only two instances (fig. 6). Bronchoscopy will usually settle the differentiation between the two lesions.

Pneumonoconiosis.—Long exposure to inorganic dust may give rise to localized pulmonary changes which, on roentgen examination, may suggest an associated neoplasm (fig. 4).

Pleurisy.—The pleura is almost always involved at some time during the course of bronchiogenic cancer, and at autopsy metastatic pleural lesions are frequently found. Reference has been made to the frequency of pain in the chest, especially early in the disease. An exudative pleuritis, simple hemorrhagic or purulent, may mask clinically the underlying bronchiogenic neoplasm. Effusion was present in sixteen of the sixty-one patients (26.2 per cent); serous or serofibrinous in three, purulent in three, and hemorrhagic in ten. While the dulness and the distant breath sounds of atelectasis may, if the displacement phenomena are not carefully studied, mislead to a dry tap, it is important to remember that not infrequently effusion associated with bronchiogenic carcinoma does not cause distinct displacement of the heart and mediastinum to the opposite side. In other words, the presence of an effusion is often difficult to determine apart from a diagnostic pleural puncture. The laboratory examination of the fluid has not been helpful in diagnosis. The hemorrhagic character is suggestive. The careful clinical study, suggestive features such as an undetermined cause, persisting pain, dyspnea out of proportion to the pleural involvement, symptoms of associated and persistent bronchial irritation, atypical roentgen observations and a negative tuberculin test all suggest the need for complete diagnostic study which, when bronchoscopy is included, *may reveal the obscure bronchiogenic* cancer.

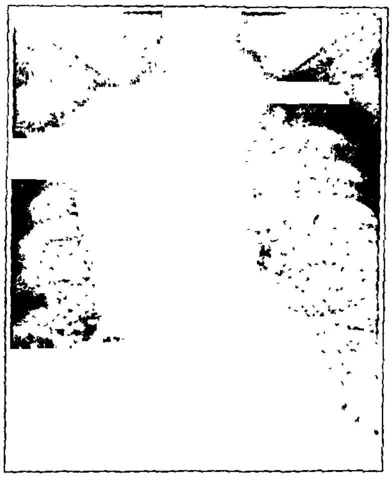

Fig. 4 (case 4).—Pneumonoconiosis and bronchial cancer in a miner, aged 38, who had had a "chronic bronchitis" for many years. Three months before he was seen the cough and expectoration increased and the sputum was blood tinged. For a long (?) period the patient had noted an increasing shortness of breath on exertion and an indefinitely located dull pain in the chest. The physical and roentgen observations indicated generalized pulmonary changes with a massive solid lesion in the right upper part of the chest. The trachea was displaced to the right. The sputum showed no tubercle bacilli. The tentative diagnosis was pneumonoconiosis with either localized fibrosis or atelectasis of the right upper lobe due to bronchial obstruction. On bronchoscopic examination Dr. L. H. Clerf found an obstructing neoplasm and a removed section of tissue revealed a primary bronchial carcinoma. Subsequently extrathoracic metastases and death occurred.

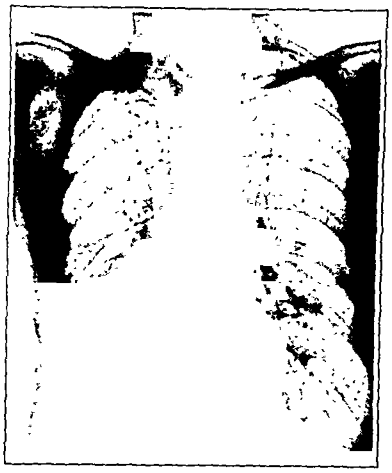

Fig. 5 (case 5).—Bronchial epithelioma in a man, aged 67, who had been ill one year, the onset following "pneumonia," which lasted one month (?). He was subsequently treated for tuberculosis. Cough, expectoration, hemoptysis, pain in the chest and shortness of breath were the local symptoms. Fever was present at the onset and at intervals, and a loss of 35 pounds (16 Kg.) occurred during the year. Sputum examination showed no tubercle bacilli. The physical and roentgen observations indicated a gross lesion in the lower right part of the chest. These suggested fibrosis of the lung with pleural thickening and contraction. There was no evidence of extrathoracic lesions. The left lung was clear. A tentative clinical diagnosis of pulmonary fibrosis and bronchiectasis was made and the patient referred to Dr. L. H. Clerf for bronchoscopic study. A section of tissue was removed bronchoscopically from the right lower lobe bronchus and the histologic examination showed a squamous-cell carcinoma (B. L. Crawford).

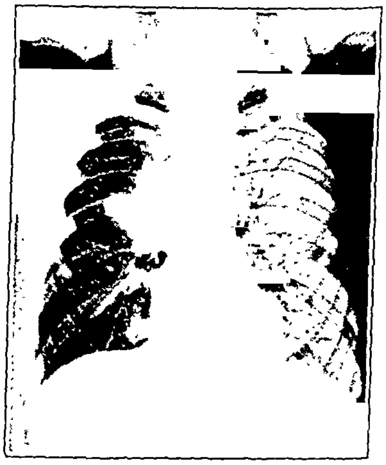

Fig. 6 (case 6).—Primary cancer of the right bronchus in a man, aged 41, who had previously been in good health except for recurring bronchitis, and had noticed two weeks before admission a distinct and persisting pain in the right part of the back. Shortly afterward cough, expectoration, shortness of breath on exertion, and weakness with a loss of 15 pounds (6.8 Kg.) developed. The examination on admission showed distinct limitation of motion in the right side of the chest, diminished breath sounds in the lower right part of the chest, and the generalized signs of bronchitis. The roentgenogram revealed a mass in the region of the right hilus. There were no extrathoracic lesions. The Wassermann and Kahn reactions were positive. Pulmonary syphilis and new growth were diagnostic possibilities. A bronchoscopic examination by Dr. L. H. Clerf revealed a neoplasm of the right bronchus, and a section removed for microscopic study by Dr. B. L. Crawford showed carcinoma.

Miscellaneous.—Not only the common but the rare thoracic diseases, for example, the various mycoses, may at times require differentiation from bronchiogenic carcinoma.

PROGNOSIS

Among twenty patients coming to autopsy, death occurred within one year from the onset of the symptoms in eleven instances, and within one and a half years in all except three instances. Among some of the patients, and especially among those given roentgen therapy, the duration has been much longer, one patient remaining well after six years. This patient is an exception to the generally fatal outcome within a relatively short period of time.

It is to be hoped, since early diagnosis has now become possible through the aid of the bronchoscopist and the pathologist, that the advances in thoracic surgery or the development of a more satisfactory cancer therapy *may render prognosis less unfavorable* than it is at present.

269 South Nineteenth Street.

Pasteur and Crystallography.—If I have a regret, it is that I did not follow that route, less rude it seems to me, which would have led, I am convinced, to wonderful discoveries. A sudden turn threw me into the study of fermentation, fermentations set me at diseases, but I am still inconsolable to think that I have never had the time to go back to my old subject.—Pasteur, Louis, as quoted by W. W. Oliver in "Stalkers of Pestilence," New York, Paul B. Hoeber, Inc., 1930.

SUBTOTAL GASTRECTOMY FOR DUODENAL ULCER

TEN YEARS' EXPERIENCE AND CLINICAL END-RESULTS [*]

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This study is based on the results of 221 subtotal gastrectomies for duodenal ulcer, and represents the combined opinions of a stomach study group composed of surgeons, internists, roentgenologists, pathologists, research fellows, and a member of the social service department. The social service department was added for the purpose of studying the economic conditions of peptic ulcer patients before and after medical treatment, as well as before and after operation. All patients were admitted, not as medical or surgical, but for the stomach group to dispose of, depending on the facts disclosed by the group study. At first there were differences of opinion as to the disposition of these cases, but as we learned from our experience, these differences disappeared. Of late years there has been little question as to whether a patient should be continued on medical treatment or should be operated on.

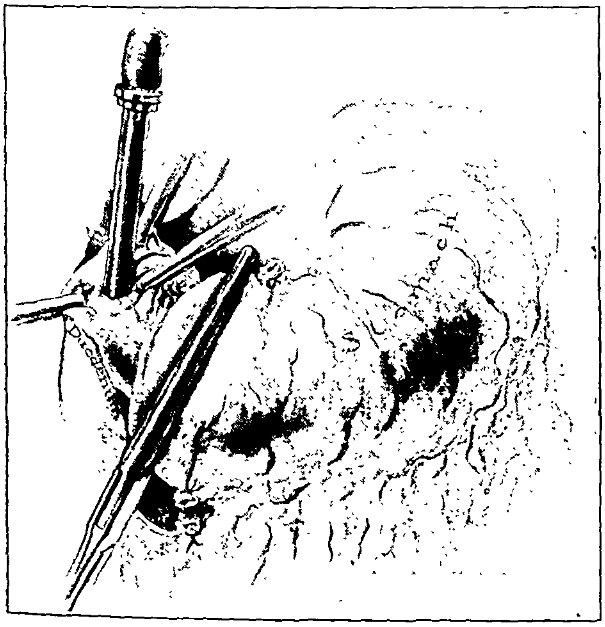

Fig. 1.—After the blood vessels have been divided and ligated in the region of the pylorus and duodenum, the anterior duodenal wall has been opened and the duodenal contents are being aspirated by suction.

We have taken the point of view that all chronic gastric ulcers should be treated surgically and never medically for the following reasons: There is not a known means of telling whether a gastric lesion is an ulcer or a beginning carcinoma until serial sections are studied microscopically. Until some one discovers a serologic test for carcinoma, such as there is for syphilis, we feel that these lesions are definitely surgical. To this we must add associated factors of fatal or near fatal hemorrhage and penetration into the pancreas and lesser peritoneal cavity, with their most severe symptoms and bad results. Finally, a comparison of the clinical end-results and mortality of medical treatment with from 5 to 9 per cent mortality from subtotal gastrectomy brings the argument all in favor of surgery.

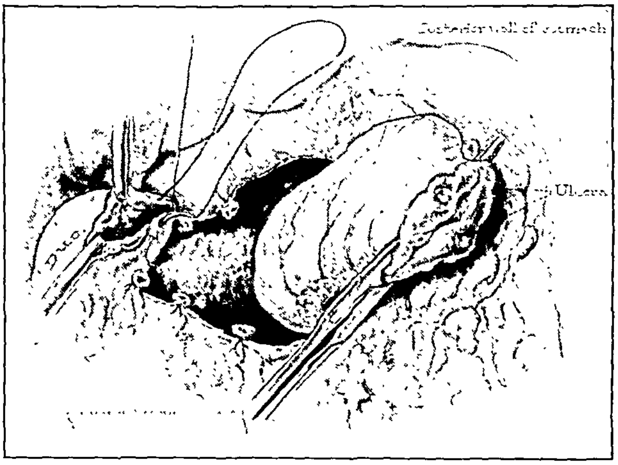

Fig. 2.—The duodenum has been cut through beyond the ulcer and is being closed with a silk suture, the Connell stitch being used.

DUODENAL ULCER

Our attitude toward the type of therapy for duodenal ulcer is quite different, first, because of the extreme rarity of carcinoma of the duodenum, and, secondly, because of the spontaneous tendency of the ulcers on the anterior wall of the duodenum to heal.

We feel that every duodenal ulcer should have the benefit of at least one thorough medical treatment, irrespective of the patient's economic condition. How long this should be continued and how often such medical treatment should be repeated depends on the symptoms he has after medical treatment, the patient's economic condition, and the character of the lesion as shown by a roentgenogram portraying a cloverleaf deformity.

Our experience has been that in all cases in which the ulcer is not bleeding or perforating, the patients are usually relieved of their symptoms after two weeks' rest in bed, and the usually accepted routine medical management. We have come to the conclusion that the most important factors in medical therapy are rest in bed and relief from the stress, strain and worry that come in daily life. The majority of the patients who come to the hospital, who have never had medical treatment and who are relieved at the end of two weeks, do not want surgery and usually decide to go home. We attempt to follow these cases in the outpatient department. Those who have had two or more treatments in our group or at other medical clinics know that this relief is only temporary, and usually prefer surgery to repeated medical treatments. For the ordinary wage earners who have had a thorough medical treatment and who have a return of symptoms, so that they are unable to earn a living, we advise operation rather than further medical management. We have learned from our social service department that by far the largest number of such patients, in order to undertake a second medical treatment, would need the assistance of their relatives or charitable organizations to take care of the dependent members of their family. This is another factor that influences us to suggest surgery. On the other hand, if the patient is wealthy and the ulcer is not complicated, we feel that he can have as many treatments as he desires, always informing the patient of the possibility of a fatal hemorrhage or perforation. If the roentgen examination shows a clover-leaf deformity, little can be expected from medical treatment. While we willingly give the patient the benefit of such treatment, we do not hesitate to tell him that the chances for cure by medical management, for any length of time, with such a lesion, are practically nil. The reason is that the majority of clover-leaf deformities of the duodenum are due to an ulcer on the posterior duodenal wall, penetrating into and adhering to the pancreas. This penetration produces contraction of the duodenum, the surrounding mesentery, hepatoduodenal ligament, and capsule of the pancreas with resulting dilatation, formation of diverticula and deformity of the duodenum about the point of contraction, thus explaining the clover-leaf deformity as seen in roentgenograms and at operation.

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[*] Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

[*] Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[*] From the Julius Rosenwald grant to the Stomach Group of the Michael Reese Hospital. The organization of the Stomach Group is as follows: Alfred A. Strauss, M.D., Ralph B. Bettman, M.D., Morris L. Parker, M.D., and Bernard Portis, M.D., surgery; Leon Bloch, M.D., J. C. Friedman, M.D., and Jacob Meyer, M.D., medicine; William Thalhimer, M.D., and Otto Saphir, M.D., pathology; and Robert A. Arens, M.D., roentgenology.

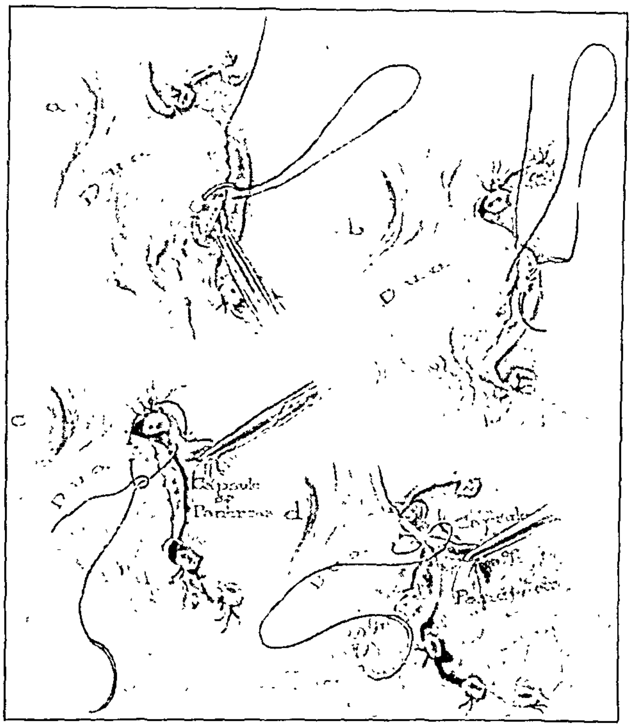

Fig. 3.—The duodenal stump is closed with two rows of silk sutures, first a Connell and then a Cushing stitch being used. The suture line is then covered with the capsule of the pancreas.

Our experience has been that these ulcers on the posterior wall do not heal, and for this reason we give the foregoing prognosis concerning medical treatment in such cases. These patients suffer not only from the ulcer that is present but also from the mechanical difficulty that the stomach has in forcing the food through the contracted duodenum.

In young patients who give a history of severe hemorrhage and come in with a second hemorrhage, we advise immediate blood transfusion. If bleeding stops, a subtotal gastrectomy in from ten to fourteen days is indicated. A second blood transfusion is given just before operation, if conditions warrant, and a third, if necessary, immediately after. Older patients, from 50 to 70 years of age, who come in with a severe hemorrhage usually do not stop bleeding, because of a more or less advanced arteriosclerosis. A large percentage of these patients need an operation within from twelve to twenty-four hours, preceded and followed by blood transfusion. Patients who have acute symptoms of perforation we have tried to keep on medical management from ten to fourteen days after the acute symptoms have subsided, and then subtotal gastrectomy is indicated. Those who have retention from anatomic obstruction we also try to hold from ten to fourteen days, aspirating the stomach dry several times daily. This decreases the size of the stomach and relieves the inflammatory process in the duodenum and stomach wall. During this time the patients are flooded with saline solution and dextrose subcutaneously, and a blood transfusion is given just before operation.

The social service department reports that a large number of these patients, even before medical treatment, are on a 50 per cent earning basis and between medical treatments 50 per cent of them are on a half time working basis. Of those patients who have had several medical treatments when coming to operation, 65 per cent have not been able to work at all. The types of occupation that our patients are engaged in may be classified as moderately hard labor as they are chiefly bakers, tailors, small shopkeepers and pedlers. Patients who have been treated by subtotal gastrectomy are on

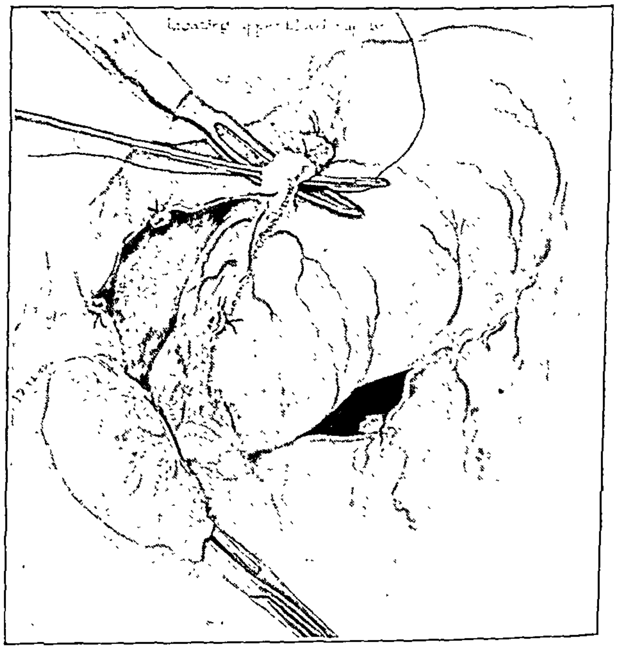

Fig. 4.—After the omentum has been separated from the greater curvature of the stomach until about 60 per cent of it is free, the blood supply on the lesser curvature is ligated three times at the re-entrant angle and divided between the second and the lower suture.

a full time working basis in from four to six months in 95 per cent of the cases.

Pathology.—The pathologic changes in living tissue as seen at operation are as follows: On opening the abdomen and lifting the duodenum into view, one usually sees punctiform hemorrhages on the anterior wall similar to the conjunctival injection as caused by a cinder in the eye. The punctiform hemorrhage is pathognomonic of duodenal ulcers and occurs by simply exposing the duodenum to the air. On further irritating this area with the gloved hand or sponge, it becomes more marked. This is due to the increased vascularity produced by the chronic duodenitis. We feel so positive about this punctiform hemorrhage that without it we doubt the presence of an ulcer. If a clover-leaf deformity is present in the roentgenogram one can see the corresponding deformity clearly in the duodenum. There is usually a contraction, and one or two diverticula above the contraction. On opening the lesser peritoneal cavity and placing the index finger along the posterior wall of the stomach and duodenum, one usually finds the lesser peritoneal cavity more or less obliterated, because of adhesions about the lower third of the posterior wall of the stomach, the mesocolon, and the capsule of the pancreas. The head of the pancreas is harder than normal and tightly adherent to the pyloric ring or first portion of the duodenum. The latter condition always means ulcer of the posterior wall penetrating into the head of the pancreas. The surrounding peritoneum of the duodenum and the hepatoduodenal ligament are adherent and markedly thickened as the result of the existing inflammatory process. The periduodenal peritoneum sometimes becomes very thick and peels like a banana. The stomach wall is thickened in its lower third and sometimes its lower half, and if the deformity of the duodenum is very severe the stomach is usually hypertrophied and edematous in appearance, giving a clinical picture of subacute and chronic gastritis. We have found that more than 70 per cent of our patients operated on have a penetrating ulcer of the posterior wall.

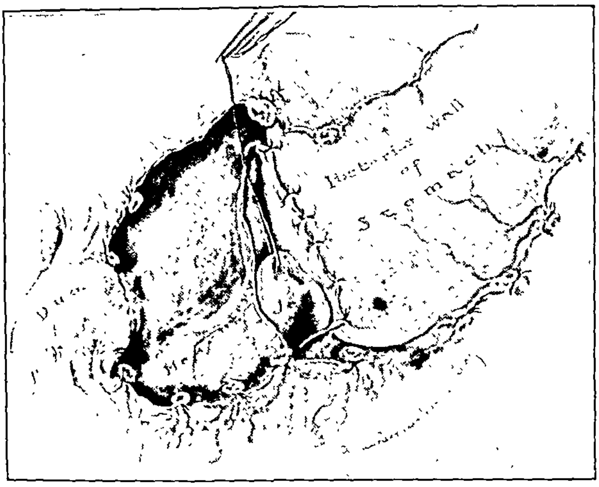

Fig. 5.—After the transverse mesocolon has been split to the left of the middle colic artery, the left leaf of it has been sutured to the posterior wall of the stomach. The jejunum is being brought through the slit.

In addition to the marked and severe duodenal ulcer there is often associated a cholecystitis and pancreatitis, aside from gallstones.

Keeping the foregoing pathologic conditions in mind, we have formulated the two following basic laws for the successful surgical treatment of ulcers:

1. That all pathologic tissue should be removed. This includes the first portion of the duodenum and the lower half of the stomach.
2. That the stomach must have a rapid or quicker than normal emptying time.

The clinical end-results are in direct proportion to the fulfilment of these two laws. Subtotal gastrectomy is the only operation that fulfils these laws; namely, it removes the pathologic conditions and usually gives the stomach an emptying time of from thirty to fifty minutes, which we think is ideal.

We have noted that if too small an amount of stomach (only the lower third) is removed, the stomach does not empty very rapidly. The same may be said when too much (from 75 to 80 per cent) is removed. After observing quite a large number of cases of low and high gastrectomies, we found that when about 60 per cent of the stomach is removed the stomach empties most quickly and best. This is due to the fact that the highly peristaltic portion of the stomach is removed, which allows only small portions of food to pass on at a time. The upper portion of the stomach has a more uniform constant contraction, keeping up a more constant intragastric tension, thus forcing the food into the jejunum like squeezing water from a sponge.

For those who object to the removal of the lower 60 per cent of the stomach for duodenal ulcer and agree that this is the proper operation for gastric ulcer, we answer that there is nothing of vital importance in the physiologic function of the first portion of the duodenum. If the principle of partial gastrectomy is correct for gastric ulcer it must be doubly correct for duodenal ulcer. The latter produces the greatest number of symptoms and the largest amount of irritability in the stomach. It can easily be compared to a patient who needs an amputation of his foot through the ankle joint. Most surgeons surely will amputate higher and sacrifice the lower third of the leg so as to insure the patient a better function with an artificial leg. We admit that the lower third of the leg is quite normal, but the patient

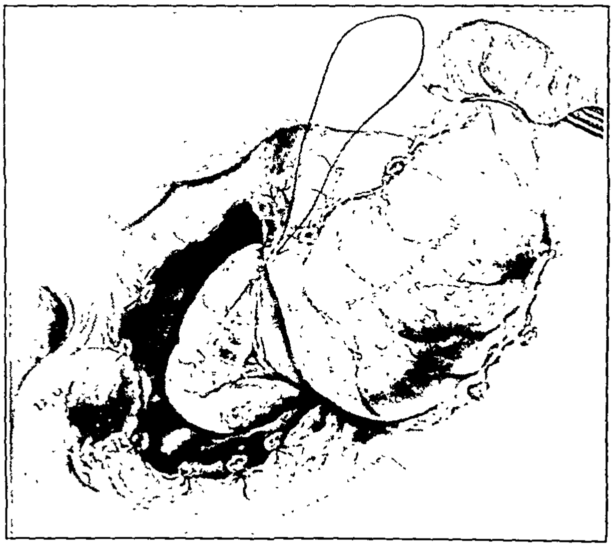

Fig. 6.—First row of posterior wall sutures being applied: Anastomosis of jejunum is begun about 5 inches beyond the ligament of Treitz, the proximal end being placed at the lesser curvature.

can walk much better with the higher amputation. So we feel quite certain, from our experience, that the patient can eat much better with one half of a stomach, from which all the pathologic tissue has been removed, than with a whole stomach in which a marked duodenal ulcer is present.

In subtotal gastrectomy, when the stomach does not empty quickly, the patient is apt to have symptoms such as he would have had from an unsuccessful gastro-enterostomy, while if the stomach empties in from thirty to fifty minutes the patient is usually symptom free. The various pyloroplasties, such as the Finney, Judd, Balfour, Horsley and Heineke-Mikulicz types, remove the anterior wall ulcer but do not affect the most important lesion, which is the ulcer on the posterior wall. This operation does not remove all of the pathologic condition, and again sends the physiologic processes of digestion through the inflamed duodenum and keeps the inflammatory process, as well as the associated cholecystitis and pancreatitis, active. A well functioning gastro-enterostomy sends the physiologic processes of digestion, most of the time, through the left portion of the stomach and puts the right side, the duodenum, gallbladder and pancreas, at rest. In most instances it would be a satisfactory operation, if it did not produce gastrojejunal ulcer, a much more serious lesion than the original duodenal ulcer.

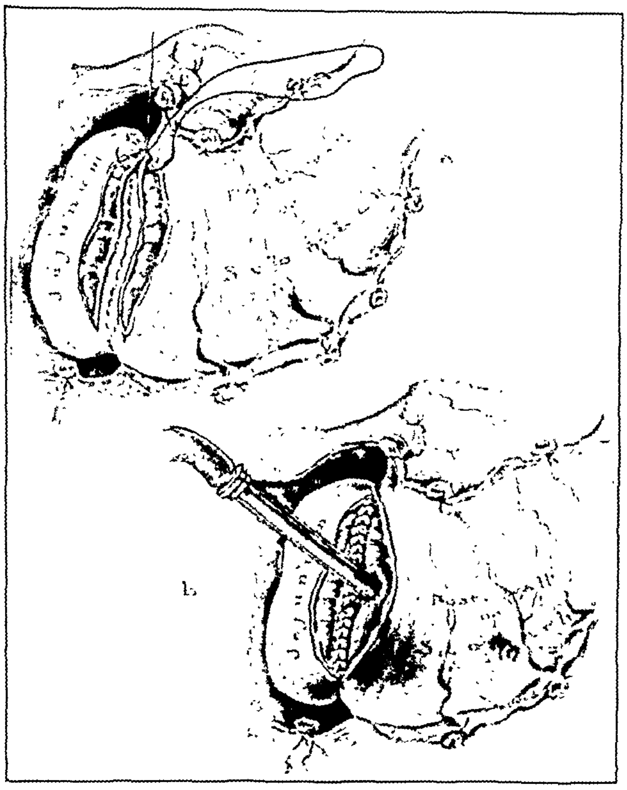

Fig. 7.—*a*, second row of posterior wall sutures is begun, muscularis being sewed to muscularis; *b*, mucosa of stomach incised and gastric contents aspirated.

Gastro-enterostomy should not be performed in acute duodenal perforation, since we have learned that a large number of these patients develop gastrojejunal ulcers, which seem to be more prevalent in this type of case than in any other. We have found this to be true not only in our own cases of this type but also in the cases in which operations were performed in other clinics. If a simple closure of the perforation is done, a large percentage of patients come back with an extensive penetrating ulcer, obstructive in character. Gastrectomy is not to be thought of, in our judgment, in the presence of an acute perforation. We prefer to do a simple excision of the ulcer and infiltrated area with the anterior portion of the pyloric ring, leaving the posterior wall of the stomach and duodenum intact, closing the resulting defect after the method of Judd or Horsley. This removes the pyloric sphincter, leaving a large opening at the point of anastomosis, and the results have been highly satisfactory.

The question now arises as to how often gastrojejunal ulcer occurs following gastro-enterostomy. It is difficult to get an accurate percentage of the occurrence of gastrojejunal ulcers, as it must be admitted that, in addition to the known number of such cases, some gastro-enterostomized patients, with symptoms, who are having medical treatment, are actually suffering from a gastrojejunal lesion. The percentage of gastrojejunal ulcers as reported from various clinics is: Berg and Lewisohn, 33 per cent; Bier's clinic, 28 per cent; Payr's clinic, 30 per cent; Hochenegg's clinic, 22 per cent; von Haberer, 16 per cent; Bastianelli, 25 per cent. It can readily be seen from these reports from various nations that there is little national or racial predisposition to the occurrence of gastrojejunal ulcer. Conservatively, the percentage of recurrences following gastro-enterostomy must be somewhere between 10 and 20 per cent.

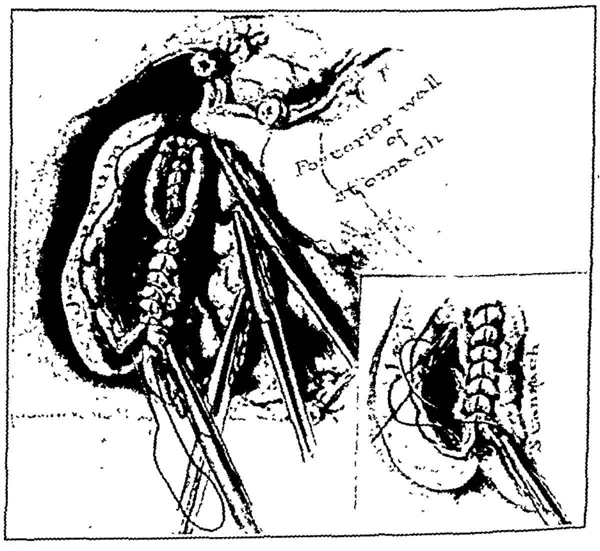

Fig. 8.—Third row of posterior wall sutures is applied, beginning at the middle, and is continued to the greater and lesser curvatures, an interlocking stitch being used.

We feel that the mortality and end-results of multiple operations for gastrojejunal ulcer plus the original mortality of gastro-enterostomy is greater than the mortality of subtotal gastrectomy, and the clinical end-results are far better in the latter operation. We therefore have come to the conclusion, in our stomach study group, that when surgery is indicated, with few exceptions we prefer subtotal gastrectomy or no operation at all. We would rather continue the patient on medical treatment than to subject him to a major operation that will give him a gastrojejunal ulcer, at least one out of every ten times, or to a pyloroplasty which will give him only partial relief from his symptoms. We have reserved gastro-enterostomy as a surgical measure for tuberculous patients and others with severe pathologic changes in the lungs, because in a large number of these cases a fulminating tuberculosis or embolic pneumonia will develop if gastrectomy is performed. During this ten year period we have performed only twenty-nine gastro-enterostomies for duodenal ulcer where pulmonary disorders were present.

Early in our experience in cases in which a marked cholecystitis and pancreatitis were present, we preferred cholecystectomy and a common duct drainage and left the ulcer alone, only to have to do, later, a subtotal gastrectomy. Later we performed cholecystectomy and gastro-enterostomy in six such cases; three of these patients came back with a gastrojejunal ulcer. At a later time we operated in six cases in which we did a cholecystectomy and subtotal gastrectomy for ulcer at the same sitting. Though we had no mortality in these six cases, we found in doing so much surgery at one time that the postoperative course was too stormy, making the risk too great. We finally decided, in this type of case, in which a cholecystitis and ulcer were present, to do a subtotal gastrectomy only and not interfere with the gallbladder. We have noted that in practically all these cases in which no stones were present the patients became free from their gallbladder symptoms after subtotal gastrectomy. This can easily be explained by the fact that in gastrectomy the duodenum is closed off. The physiologic process of digestion is sent down the left side, stopping the irritation of digestion in the duodenum, gallbladder and pancreas, thus allowing the mild infection in these two remaining organs, namely, the gallbladder and pancreas, to subside.

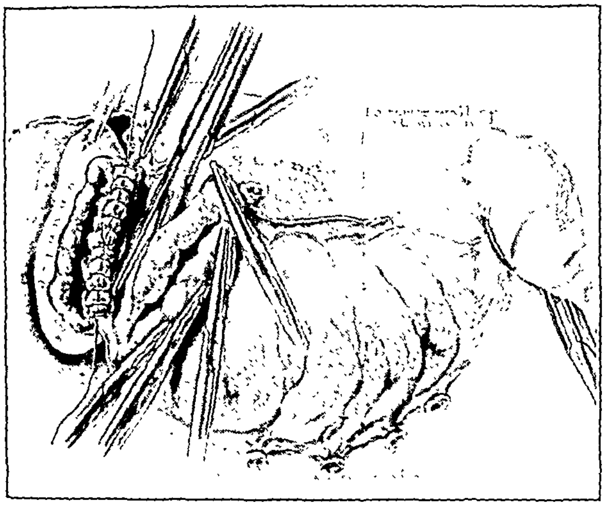

Fig. 9.—The stomach is now amputated from the anterior wall. All bleeding points are clamped and ligated.

As to the relationship of the appendix to duodenal ulcer, we have never removed the appendix in subtotal gastrectomy. In only two cases did we have to operate later for a subacute appendicitis. This would lead us to infer that the appendix plays only a minor rôle in the causation or aggravation of duodenal ulcer.

Surgical Technic.—In doing a subtotal gastrectomy we use a no-clamp method of the Polyá type.

Postoperative Complications.—Pneumonia and atelectasis are the most important and the most serious complications with which we have to deal. They often are noticed in the first twenty-four hours as an embolic process or a collapse of the lung, with high temperature, rapid pulse and rapid respirations. Cases of pulmonary infarcts occur also within twenty-four hours after operation. In our 221 cases, we had 26 cases of pneumonia, of which 13 were of a very mild type, lasting only about one to two days and, no doubt, of an atelectatic nature. Of the remaining 13 cases 5 ended fatally.

Symptoms of regurgitation that were not due to mechanical obstruction occurred in fourteen cases. These symptoms we believe are probably due to a disturbance in the neuromuscular mechanism. This condition usually corrects itself in about four days. A Rehfuss tube is passed into the stomach, through which the stomach is aspirated every two hours. If no more than from 60 to 90 cc. is aspirated each time, one can be sure that some of the secretions are passing through the stoma. At the end of forty-eight hours we inject through this tube 2 ounces (60 cc.) of water every hour, and aspirate every two hours. If there is less returned than the amount injected, one can be certain that this is not a mechanical obstruction and that it will correct itself. In four cases these symptoms persisted up to the third week, but at the end of ten days fluoroscopic examination revealed that some of the barium was passing through. One could infer that this disturbance was neuromuscular in origin. All of these cases were normal between the third and fourth weeks. One might be quite apt to mistake this condition for a mechanical obstruction. We are sure that two cases in which we reoperated at the end of ten days were of this type and were not mechanical, for little was found to account for the obstruction.

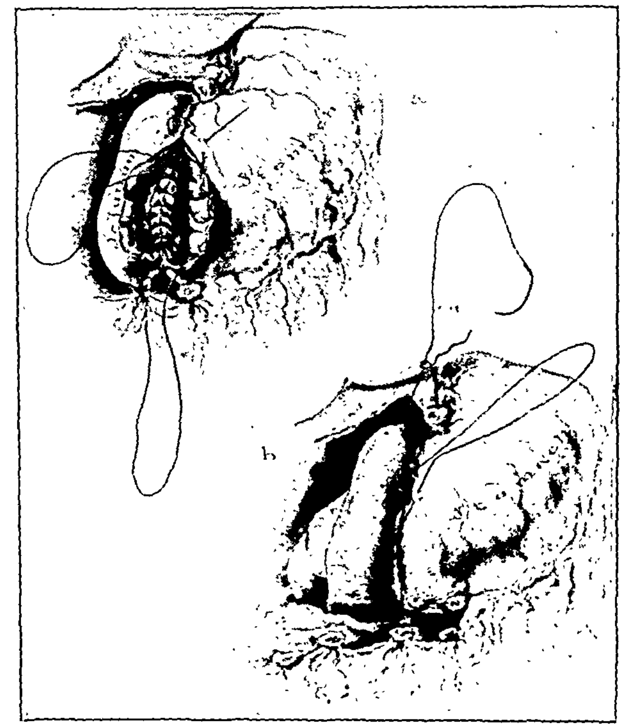

Fig. 10.—*a*, a continuous over and over suture is used to close the anterior wall; *b*, a seroserous Cushing stitch on the anterior wall complete the anastomosis.

True mechanical obstruction of the outlet of the anastomosis has not been common. We have found it in four cases, in three of which recovery took place.

However, one of the patients who recovered from the obstruction died two months later of an acute fulminating pulmonary tuberculosis. These obstructions at the outlet of the stomach are never an emergency as long as a Rehfuss tube is kept in the stomach. It is best to give the patient saline solution and dextrose subcutaneously, plus a blood transfusion for food value, until about the tenth day, when intervention should be considered. Usually the efferent loop of the anastomosis is mildly obstructed, owing to an exudate or constriction by a small piece of omentum which can be released easily. In order to insure the patient's future feedings, a Rehfuss tube with a wire is passed by mouth into the stomach and guided by the operator through the anastomosis to three or four feet *below the outlet* of the stomach. The patient then can be fed immediately and in a few days he can take food by mouth. If it passes through, the tube can be left in for several days longer and then removed in perfect safety.

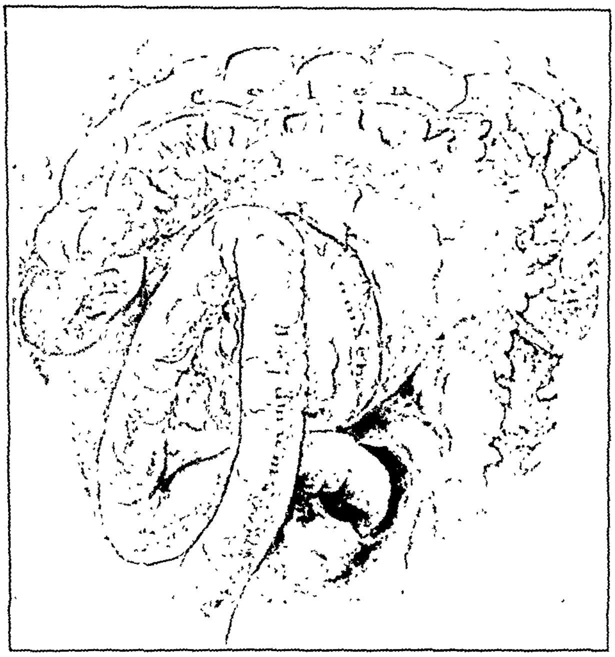
Fig. 11.—Right half of mesocolon is sutured to anterior wall of stomach, high above the anastomosis, and shows stomach and anastomosis well below mesocolon.

Peritonitis has been an extremely rare complication in our series. One case was due to a perforation following a phlegmon of the gastrectomized stomach. The second was a peritonitis deformans in which several operations were done in an attempt to relieve the obstruction.

We have had one case of cerebral hemorrhage with right hemiplegia.

We have had no cases of fatal pulmonary embolism.

We have seen only one subdiaphragmatic abscess associated with empyema in this series.

One patient developed an abscess in the lung and died four and one-half months after operation.

In the first fifteen cases of our series in which a low resection was performed there were two gastrojejunal ulcers which were later reoperated on; a high subtotal gastrectomy was done, and both patients made an uneventful recovery.

Mortality.—We have done 221 gastrectomies for duodenal ulcer, with 12 deaths, a mortality of 5.4 per cent. An analysis of this mortality shows that five patients died of pneumonia; one of a secondary perforation due to phlegmon of the stomach; one as the result of a subdiaphragmatic abscess with empyema; one from acute fulminating pulmonary tuberculosis two months after operation; one from cerebral hemorrhage with right hemiplegia, and one from coronary sclerosis with angina pectoris. This patient had anginal attacks previous to the operation, but they were not recognized as such until twenty-four hours before death. The observations were confirmed by autopsy. One patient died from peritonitis deformans following repeated operations to relieve the obstruction; one died of a lung abscess four and one-half months after operation. The case of coronary sclerosis with anginal attacks and the case of abscess of the lung four and one-half months after operation are included, but their relationship to the mortality following subtotal gastrectomy is certainly questionable.

In reporting this series of 221 cases, with a mortality of 5.4 per cent, 56 cases have been included in which operations had been performed previously and subtotal gastrectomy was the second or third operation. Forty-two cases were complicated by severe hemorrhage just before entering the hospital, or just after admission. Fifteen patients had acute penetrating symptoms within a short time before operation.

Clinical End-Results.—In following up these cases, we have found that 95 per cent are free from symptoms, are on no particular diet or medication, and have gained from 15 to 50 pounds. Some of these, a very small percentage, complained for from three to six months of fulness after eating, sweating and weakness, which appeared after each meal and lasted from ten to thirty minutes. This condition disappeared in from three to six months. We believe that this is a vagus disturbance and have noted it mostly in women who tend to be neurotic. In a number of cases in which these symptoms appeared the stomach emptied rather slowly and when the symptoms disappeared the emptying time was from thirty to fifty minutes. In the remaining

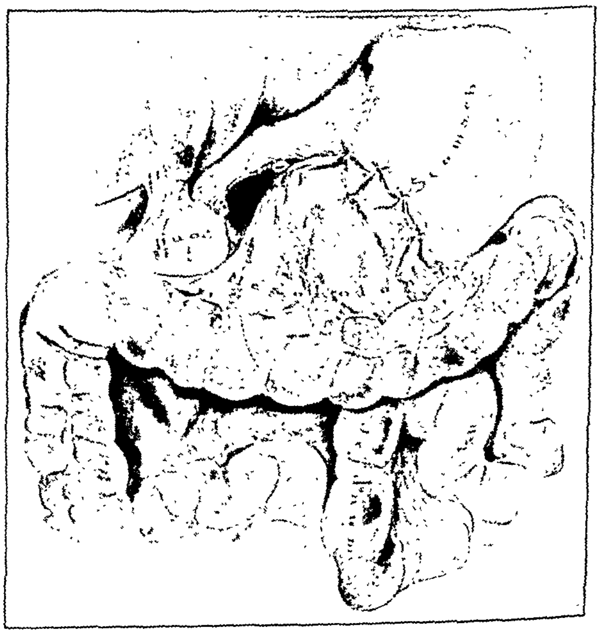
Fig. 12.—Appearance following completion of operation, showing the inverted stump of the duodenum, and the anastomosis below the transverse mesocolon.

5 per cent of cases there are symptoms of distress that cannot be accounted for by the emptying time or roentgenologic observations. Some of these were diagnosed as spastic colitis, others on the basis of a visceral neurosis. They usually occur in highly neurotic persons who do not gain in weight and in whom it is difficult to estimate how many of the symptoms are truly physical.

Emptying time was from one to one and one-half hours immediately after operation, but from three to six months afterward it was somewhere between thirty and fifty minutes. This shows that the stomach and jejunum undergo muscular development as the result of their new mechanical function and physiologic condition.

The acidity following gastrectomy corresponds with that published by Berg and Lewisohn. At the end of two weeks there was in 5 per cent of these cases a free acid of from 10 to 15, with a total acidity of from 25 to 30. In the remaining 95 per cent there was no free acid and the total acidity was from 5 to 10. In subsequent follow-up work on these cases there was no change from the immediate postoperative analyses. We believe that one great factor in this anacidity is the rapid emptying time of the stomach which prevents a reflex irritation and formation of hydrochloric acid.

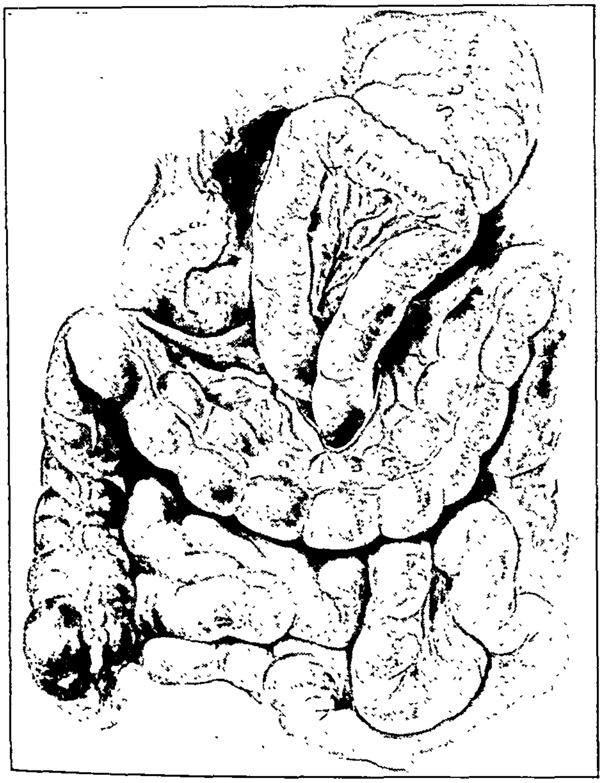

Fig. 13.—In cases of high gastric resection in which the mesocolon cannot be brought up to the stomach, the jejunum is brought through the slit and the mesocolon is left without being sutured.

There has been practically no change in the postoperative observations of the blood over the preoperative ones. Both hemoglobin and red blood cell count have remained the same or slightly higher. There were only two exceptions, one in a patient with a chronic bleeding ulcer who remained anemic, and the second in a patient with a severe diarrhea before operation which persisted after operation. Since then the diarrhea has stopped and the blood picture has become normal.

CONCLUSIONS

1. We believe that ordinary wage earners of the laboring class with marked recurring symptoms of duodenal ulcer should be operated on after one thorough medical treatment.

14. Our clinical end-results, as well as our 5.4 per cent mortality, in these 221 gastrectomies, which included complicated cases and those in which previous gastric operations were done, justify our continuance of this operation for duodenal ulcer in preference to any other surgical procedure.

THE INCIDENCE OF HEMORRHAGE IN PERFORATED GASTRIC AND DUODENAL ULCERS *

MOSES BEHREND, M.D.
PHILADELPHIA

PROTOCOL.—*Perforated ulcers rarely bleed.*
Bleeding ulcers rarely perforate.

Ulcers of the stomach and duodenum manifest themselves in various ways. They are selective in their location, their time of perforation and their incidence of hemorrhage. The varying degrees of morbidity caused by them depend to a large degree on their location. In searching for ulcers, physicians know from previous experience that the most likely site for their formation is the stomach and duodenum. Particularly are they prevalent along the lesser curvature of the stomach, the pylorus and the first portion of the duodenum. Ulcers that perforate are usually found in these places, but those that produce hemorrhage have not always the definite locations referred to. The reasons for these variations in the genesis of ulcers have never been definitely determined. Again, the fact that some ulcers may exist for years and never perforate or produce hemorrhage, but simply result in chronic invalidism, has never been satisfactorily explained.

For some time anatomists and surgeons have ascertained that certain areas around the pylorus possess a deficient circulation. These areas are immediately proximal and distal to the pylorus on the cephalad side. Naturally, the circulation varies somewhat in every patient, but generally there is an anemic area which is very noticeable when compared to the remainder of the stomach. In these bloodless areas perforations are quite apt to occur, which may account for the observation already made that perforated ulcers rarely bleed. I have never experienced such a case. I have also never had a perforation occur on the caudal surface of the pylorus, where the stomach is more richly supplied with blood (fig. 1). The cardiac end of the stomach and the posterior wall have also been more or less free from perforative ulcers. If perforation occurs in ulcers on the posterior wall of the stomach, they become adherent to the parietal peritoneum and the pancreas; the same may be said of perforating ulcers on the posterior wall of the duodenum.

Lately, independent of the work of Einhorn [1] and of Cole,[2] I conducted some research work concerning the blood supply of the stomach, especially at the pylorus. Immediately after a postmortem, the vessels supplying the stomach are clamped so that they can be injected more readily with a gelatin mass stained with carmine. I have practically come to the same conclusion as Einhorn, who has worked along similar lines; namely, that:

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Einhorn, Moses: Surg. Gynec. Obst. **50:** 416 (Feb.) 1930.

[2] Cole, L. G.: New England J. Med. **201:** 1081 (Nov. 28) 1929.

> The arteries in the submucosa, in the pyloric region of the lower lesser curvature of the stomach, are practically terminal vessels and are relatively sparsely distributed, giving a limited blood supply to this area. They are tortuous, anastomose infrequently, and are subject to powerful and repeated forcible contractions by numerous interlacing, intricate and frequently contracting muscle bundles. These constrictions tend to interfere with the circulation and, moreover, the terminal vessels are subject to the same tendency to circulatory interference by reason of easy blocking as are the terminal vessels in the brain or the kidney, and are especially liable to harbor the foci of anemia.

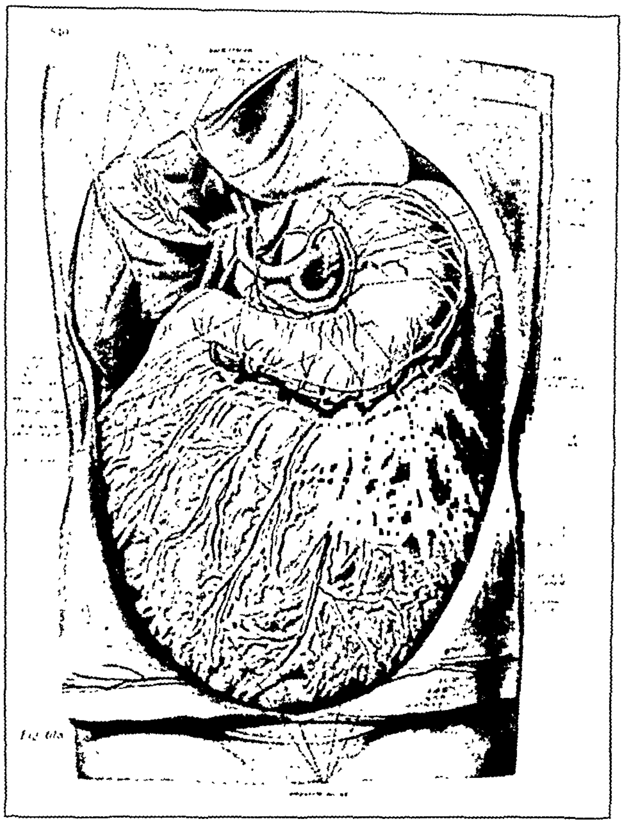

Fig. 1.—Note the anemic area around the pylorus. The arteries in this region are end vessels with practically no anastomosis.

As soon as perforation occurs, secretions of the stomach or duodenum, as well as the food content, exude. These acrid discharges, no doubt, have a tendency to seal any small blood vessels in the wall of the ulcer. Another factor militating against hemorrhage is the adhesion of the walls of the perforation to the surrounding tissues. Again, a protective lymph which surrounds the perforation helps to protect not only bleeding but also the escape of the contents of the viscera.

Bleeding ulcers rarely perforate. Ulcers that give rise to hemorrhage are more apt to occur in the pliable elastic tissue of the stomach and duodenum than in the denser area around the pylorus. Ulcers that bleed are not always readily located. No definite place can be assigned to this type of ulcer. One naturally always looks first in the ulcer-bearing areas. At times, however, it becomes necessary to explore the mucous membrane of the stomach thoroughly before finding the point of bleeding. Again, it is frequently impossible to find the source of hemorrhage, because the entire mucous membrane of the stomach seems to be in a state of congestion, blood oozing from every surface where it is touched. However, if the source of hemorrhage cannot be found at all, one must visualize the possibility of dilated esophageal veins as its cause. In the presence of cirrhosis of the liver, for instance, one can readily make a diagnosis of dilated esophageal veins. The appendix has also been held responsible for hematemesis; Deaver has mentioned cases cured after an appendectomy.

There is some difference of opinion concerning the question whether surgeons should or should not operate while the patient is bleeding. They know which course to pursue if bleeding is present from any other source. The same holds true in patients bleeding from gastric or duodenal ulcers. The patient ought to be operated on and the source of hemorrhage located. If an ulcer is found, excision should be practiced. True, ulcers that bleed are more difficult to find than those which perforate, for the reasons stated before: first, because they do not always occur in the classic situation of ulcers and, second, the latter are usually found in the more elastic areas of the stomach and duodenum. An illustration is afforded by a patient, a woman, whom I saw in consultation in a neighboring city. She had hematemesis and bloody stools, with outward signs of severe loss of blood. I advised a blood transfusion if the bleeding continued and then operation for the source of bleeding. This advice was not followed; the patient bled to death. Tragic deaths occur in those who have secret bleeding from gastric or duodenal ulcers without any external signs of its taking place. This occurred in two young men during the night; they were to have been operated on the next morning. The nurse on her rounds during the night found them dead.

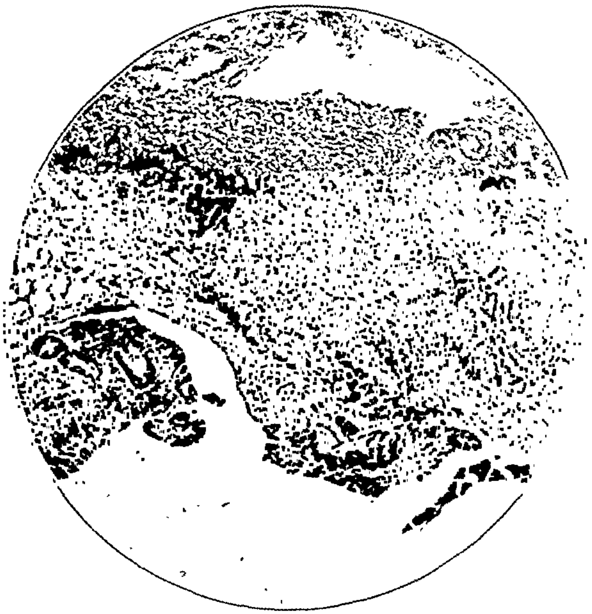

Fig. 2 (Davidsohn).—Only a few islands of gastric mucosa are seen. The remaining part shows a deep ulcer reaching down into the muscularis. The surface of the ulcer is covered with a fibrinous exudate. The muscularis is densely infiltrated with many leukocytes. The blood vessels are compressed. These ulcers rarely bleed.

It is my opinion that to defer operation for bleeding ulcer in the hope that the ulcer may not bleed again is an error of judgment.

REPORT OF CASES

A man, aged 30, admitted to Mount Sinai Hospital, Nov. 26, 1928, in the private medical service of Dr. A. I. Rubenstone, had been well until a year and a half before. Two days before admission he had passed blood by the bowel and on the day of admission he passed blood. He was anemic and undernourished and he complained of palpitation. The abdomen was tender in the epigastric region. Under treatment for ulcer, and by means of transfusion, the bleeding stopped to a marked degree. Small amounts of blood were always passed by the bowel. The patient was operated on two weeks after admission. No distinct ulcer could be felt, but on the serous surface there was evident stippling of the serous coat. This portion was excised and a tiny ulcer was disclosed. A pyloroplasty completed the operation. A pathologic report confirmed the ulcer macroscopically and microscopically (fig. 3). The patient has had no recurrence since operation.

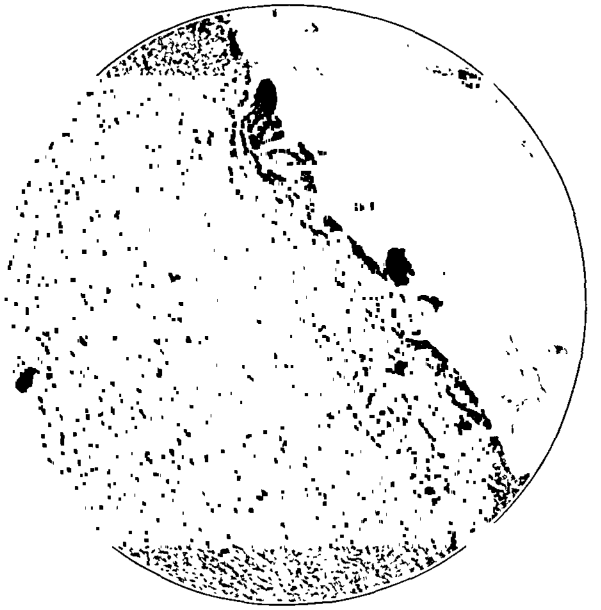

Fig. 3 (Davidsohn).—Here is found a pronounced inflammatory reaction at the bottom of the [illegible] ınd cell infiltration with occasional eosinophil and [illegible] ıd a young granulation tissue with fibroblasts and [illegible] are the bleeding ulcers.

Recurrent hemorrhagic ulcers after their excision are rare. A case of this character, however, first came under my notice three years ago:

A man, aged 21, was admitted to the Jewish Hospital in the private service of Dr. E. A. Heller, May 1, 1927. The symptoms began four years previously. In February, 1923, there was severe vomiting of food, followed by hematemesis. Blood was noticed in the stools. He did not complain of pain. He vomited at least twice a day. In November, 1923, he had a similar attack, losing so much blood as to incapacitate him for two months. The following April he had a third attack, which was not as severe as the previous one. He had four bloody stools. In April, 1926, he had a fourth attack of hematemesis. Since then, infrequent attacks of a dragging sensation over the upper part of the abdomen caused occasional attacks of nausea. He gained no weight in three years. He had the typical appearance and physiognomy of the ulcer patient. Fluoroscopic examination showed that the stomach filled normally. It was the shape of a fish-hook. There were no filling defects in the stomach. The duodenal cap showed a filling defect along its upper border, evidently the site of an ulcer. Operation was performed, May 7, 1927. A well defined ulcer was found; a stellate scar on the serous coat near the pylorus was outlined. The ulcer was removed and a posterior gastro-enterostomy performed. The pathologic report was benign ulcer.

The patient was readmitted, July 4, 1928, with a complaint of hemorrhage from the bowel. For the past two weeks the patient had seen bloody stools. July 5, he had a profuse hemorrhage which made him extremely weak and dyspneic. A blood transfusion was performed, and the next morning the old site of the ulcer was found. Attached to the mucous membrane was a piece of linen thread from the previous operation, which seemed to be the cause of the hemorrhage. This was excised with the ulceration it had caused.

The patient was readmitted, Feb. 26, 1930, with a profuse bleeding from the bowel. Transfusion was performed on admission. He was operated on, the next morning, and just beyond the old scar of operation there was a series of soft pliable ulcers. A large portion of the anterior wall of the duodenum was excised. The mucous membrane was pitted and furred. Beyond this area the mucous membrane was normal. This was rather a remarkable case, because within three years the patient had had three distinct ulcers, the last seemingly a group of ulcers lining the mucous membrane of the duodenum.

COMMENT

Perforative ulcers occur more frequently than bleeding ulcers. This fact is also difficult of explanation. In one year I operated on twenty-four perforated ulcers; during this time not one case of bleeding ulcer was observed. The exact ratio is not known, but I should judge that about one in twenty-five bleeds.

It is interesting to note the gross pathologic difference in vivo between the chronic ulcer, the perforating ulcer and the bleeding ulcer. No one can mistake the hard, indurated, punched-out ulcer for any other type. Here the edges of the ulcer are firm; the base of the ulcer is devoid of mucous membrane, being displaced by firm connective tissue. The base of the ulcer is of varying depth, depending on its chronicity. These ulcers do not bleed because the blood vessels have been partially obliterated by the hard connective tissue. They may perforate, depending again on the thickness of the base of the ulcer. The bleeding ulcer is usually an acute condition: hence the area affected is much smaller in extent. The edges of these ulcers are soft, with rounded borders; the surrounding mucous membrane is

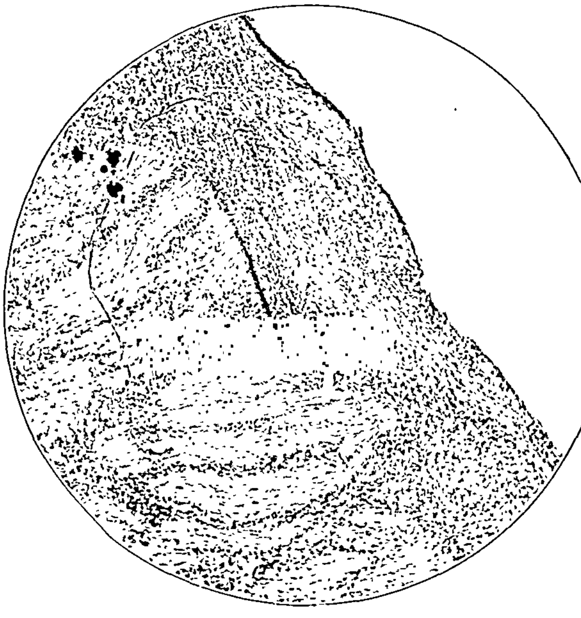

Fig. 4 (Davidsohn).—The section shows a mild inflammatory reaction consisting of a moderate infiltration with round cells and leukocytes. The edges are covered with a thin layer of fibrinous exudate. Another type of bleeding ulcer.

congested and it often becomes difficult to locate the source of bleeding unless one opens the suspected viscus. Even then, one may not find the source of the bleeding. The perforated ulcer usually follows the description of the chronic ulcer with the added picture of perforation. There is found a solution of continuity in the center of an indurated wall of the stomach or duodenum. The same is true of perforations without previous gastric symptoms. Another type of perforation is found when the wall surrounding the ulcer is perfectly flaccid with little or no inflammatory reaction. This is a rare condition of which I have seen one case.

The histologic picture of the ulcers described can be verified when placed under the microscope. For instance, in the chronic type (fig. 2), the base of the ulcer shows a few small blood vessels. They have been pressed on by the proliferation of fibrous tissue. As a consequence, these ulcers do not bleed as readily as the acute or subacute type. In these there is very little inflammatory reaction, with almost an entire absence of connective tissue elements. The blood vessels, therefore, have not been compressed because of the absence of scar tissue, such as is found in the chronic ulcer. Also in the acute and subacute forms the capillaries are large, which naturally predisposes to hemorrhage (figs. 3 and 4).

CONCLUSIONS

The fact that bleeding ulcers rarely perforate and perforated ulcers rarely bleed may be explained by anatomic physiologic and pathologic observations.

Anatomically, there is a bloodless area around the pylorus responsible for some of our deductions; physiologically, the exuding juices prevent hemorrhage, while pathologically the age of the ulcer determines whether it is going to bleed or not.

1738 Pine Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STRAUSS, BLOCH, FRIEDMAN, MEYER AND PARKER AND DR. BEHREND

Dr. Roy D. McClure, Detroit: The title of the paper by Dr. Strauss and his collaborators first suggested to me Dr. Lane's colectomy in the prevention of old age; that is, it seemed like a tremendously radical procedure. I would like to know, perhaps after fifteen or twenty years, the end-results of these cases. Better conclusions can be drawn from the series presented by Dr. Strauss if they can be followed and reported again in ten years. Our experience in duodenal ulcer is that, largely, it is a medical disease with only an indirect surgical approach, such as the removing of tonsils, infected teeth, abscesses, perhaps appendixes and even gallbladders in which infection is present. Perhaps the authors mentioned the percentage of duodenal ulcer patients which they have in the hospital that are operated on. If not it would interest the section to know. When we do operate on a patient with a duodenal ulcer, we do either a pyloroplasty with destruction of the muscles of the pylorus, or a posterior gastro-enterostomy. In only a limited number of cases are we doing a more radical procedure, and our results have been extremely good. We have a number of cases in which the pylorus is involved by the ulcer. In the experience which I relate, I give our reason for a two-stage operation instead of a single-stage operation if a resection has to be done. I recall two cases in which there was involvement of the duodenum and the pylorus, with an extremely wide inflammatory reaction around the ulcer, and it was difficult at the operation to tell whether cancer had already developed in this area. Two-stage operations were decided on and high posterior gastro-enterostomies performed. Two weeks later we went in to resect the pylorus and first part of the duodenum, and much to our amazement the tumor mass had entirely disappeared. Both of these patients have been followed, and they have had no further trouble. For that reason, I should feel that all these cases of operative ulcer could perhaps first have the advantage of a high posterior gastro-enterostomy, and then, if in a month or two months or six months the patient is not well, a subtotal resection of the stomach is much easier to perform, and I believe the risk and the end-results would be even better than those of Dr. Strauss and his associates which are good, as shown by their statistics. I feel that the doctrine of such radical surgery practiced by average surgeons is rather a dangerous doctrine. If a subtotal gastrectomy is indicated, perhaps it should be done by surgical teams here and there who gain skill through the large number of these operations they have done.

Dr. Richard Lewisohn, New York: Partial gastrectomy for duodenal ulcer yields much better end-results than more conservative procedures, gastro-enterostomy, local excision and pyloroplasty. The main object of any surgical procedure should be a permanent cure at the time of the primary operation. It is well known that the so-called conservative methods fail to cure the patients in a large percentage of instances. In my material, a careful follow-up of gastro-enterostomies showed that less than 50 per cent of the patients were completely cured, and that 34 per cent suffered from gastrojejunal ulcer. In 16 per cent, this diagnosis was proved by reoperation. The other 18 per cent (proved by x-rays) refused reoperation or went to other hospitals. It is interesting to find that my observation in 1925, of the high incidence of gastrojejunal ulcers has been confirmed, not only by Dr. Strauss and his associates but also by similar statistics published by a number of other clinics. Two main arguments have been advanced against subtotal gastrectomy in gastroduodenal ulcers: (1) that the mortality is apt to be excessive, and (2) that this method represents an unnecessarily mutilating procedure. The retrocolic Billroth II method (either in the form of the Hofmeister anastomosis or in very high gastric resections with the aid of a button) has given satisfactory results in my hands. The mortality in primary operations for chronic gastroduodenal ulcers over a period of eight years was 2.27 per cent, certainly not a prohibitive mortality. Acute bleeding ulcers, operated on either during or immediately after a profuse hemorrhage, are not included in this series. As to the second point, I consider gastro-enterostomy which fails to cure one out of two patients, and which is followed by gastrojejunal ulcers in about one out of three patients, a much more mutilating procedure than subtotal gastrectomy. I have seen patients who had to undergo six and more surgical operations until gastric resection cured them. What an economic waste. The majority of American surgeons favor gastro-enterostomy, whereas the surgeons in Germany and Austria favor gastric resections. I understand that Starlinger has recently collected about 25,000 case reports of partial gastrectomy for ulcer from eighty-five clinics in Germany and Austria, a most impressive figure. The number of recurrences in this series were less than 1 per cent.

Dr. Leon Bloch, Chicago: In an experience with more than a thousand cases of duodenal ulcers I have become somewhat skeptical about the results of medical treatment. The 80 per cent of medical cures in former reports have dwindled to less than 50 in more recent ones. The frequent finding at autopsies of ulcer scars in the duodenum often without symptoms during the life of the individual prove that ulcers heal and heal spontaneously. However, remissions of five or more years do not mean that cure has been effected because the occurrence of hemorrhage and perforation in apparently cured cases are tragic evidences of failure. New ulcers may continue to form in one with ulcer tendency. This apparent failure of medical measures, however, does not mean that operation is recommended for every case. Perforation, repeated or severe hemorrhage and organic stricture are the definite indications for surgery. What, then, should be done? I tell my patients that there is no time limit to the treatment and that they may have to restrict their diet for one or more years or even indefinitely if they wish to avoid an operation. Hemorrhage with or without pain is a very frequent symptom of gastrojejunal ulcer following gastro-enterostomy for duodenal ulcer. Hurst in his recent book on ulcer states that many patients who did not bleed before the operation bleed after gastro-enterostomy. This is in accord with our views. Pain is the most common symptom; it is often more intense and is less amenable to treatment than the original ulcer. Gastrojejunal ulcer is rare after resection and the dangers of the operation are much less than for the secondary operation for jejunal ulcer after gastro-enterostomy. In fact, the mortality rate of resection in my private patients operated on by Dr. Strauss is much smaller than reported by him. Undoubtedly the better physical condition of these patients at the time of operation accounts for this. Recovery occurs after a period of readjustment of from three to six months. During this time the jejunum dilates sufficiently to take care of the increased burden thrown on it and the patient learns to chew his food properly, thereby avoiding the troubles of an irritable colon. He then may eat what he wants and when he wants to and have no discomfort. Such results certainly speak for resection as against gastro-enterostomy.

Dr. Bernard Portis, Chicago: I wish to report some of our experimental work on the effects of gastrectomy and gastro-enterostomy on gastric secretion and upper intestinal flora. This work was started about nine years ago, in association with Dr. Alfred Strauss at the Nelson Morris Institute of the Michael Reese Hospital. I found that dogs subjected to gastro-enterostomy, compared to dogs having a gastric resection, did not have a materially altered gastric secretion because of the gastro-enterostomy, whereas dogs that had a partial gastrectomy had a resultant anacidity or absence of free acid after this operation. When the emptying time was tested under a fluoroscope, the dogs that had a gastro-enterostomy emptied in about the same time as normally, whereas the dogs that had a gastric resection emptied in from a third to a half of the previous normal. There are two important facts to be considered in the question of the outcome of the two operations for the cure of duodenal ulcer. The acid is practically absent or completely neutralized in the remaining stomach, and the emptying time is quicker after partial gastrectomy, whereas the contrary is the case after gastro-enterostomy. Another important feature that I studied was the effect of these two operations on the upper intestinal flora. I am not going into the details, because it was published a few years ago in one of the journals. However, the conclusions are as follows: The upper intestinal flora, especially in the jejunum, tends to become fecal in type in partial gastrectomy, whereas the upper intestinal flora in gastro-enterostomy remains practically the same. What results will ultimately occur from this change in the upper intestinal flora will demand future observation. However, it is not to be overlooked that perhaps some time, in ten or twenty years, serious results, more especially serious anemias, may occur in patients who have had gastric resection, although the immediate clinical results are much better after this type of surgery. Another feature which we observed in patients who have had a gastro-enterostomy is that the ulcer should not be considered cured just as soon as the anastomosis is made. Patients require ulcer management for a considerable period in order to prevent the recurrence of the ulcer. Also those individuals who have had hemorrhages from duodenal ulcers and have had gastro-enterostomies frequently have subsequent hemorrhages.

Dr. William J. Cassidy, Detroit: This ulcer question has been the battle-ground of the surgeon and the medical man for a great many years. Gastro-enterostomy, when it first came out, was done for every condition in the abdomen which had any signs or symptoms or even suggestible symptoms referable to the stomach. Since the advent of the roentgen ray, this has put gastric and duodenal diagnosis on a more accurate basis, so that fully 95 per cent of the gastroduodenal ulcers and gastric ulcers should be diagnosed by a fairly good roentgenologist or by a good roentgenologic surgeon. This axiomatic fact must be borne in mind: Any operation that leaves stomach tissue leaves a potential area for ulcer, irrespective of who does it. Any surgical procedure that carries a high incidence of mortality for the average surgeon is not the best type of operation to advocate at large. We decry medical management. The medical man isn't a bad fellow if he is given half a chance. Let him treat the patient first. The trouble with surgeons is that the patients with acute ulcer too often come first to the surgeon and the patients with chronic ulcer too often come first to the medical man. European surgery cannot be applied to American surgery. The average American will not listen to rule or reason. If a law is made, the patient will try to break it. That is what is wrong with the treatment of ulcer in the United States today. These patients will not stand regulation. In about 200 perforating ulcers that I have seen, about 35 per cent bled previous to perforation. They did not bleed at the time of perforation. Any ulcer, especially if it is localized at the lesser curvature of the stomach, along the larger blood vessel, if it erodes into a vessel, is going to bleed. The acute perforating ulcers rarely bleed, they go through so quickly. I have seen them go through in twenty-four hours. They are punched out, there is no inflammatory process; it is too rapid; and they are usually streptococcic.

Dr. Clark D. Brooks, Detroit: I think that there is less and less need of operating on ulcers on account of better medical management. A great many patients, I believe, are operated on with different types of operation for duodenal ulcer that do not need operation at all and would get well if they had good medical management by a competent medical associate. I think gastro-enterostomy is often condemned because, first of all, it is done when it is not necessary. I believe that a properly made gastro-enterostomy by a properly qualified surgical team will show good results in more than 90 per cent of patients. My own belief is that the ideal treatment for chronic duodenal ulcer which has not responded to good medical treatment in most cases is to destroy the ulcer with the actual cautery at the time of the operation and to perform a large no-clamp method of gastro-enterostomy. Regarding the bleeding ulcer, I do not believe that the patient who comes into the hospital in an ambulance, with hemorrhages, should have an operation until he has had a blood transfusion, intravenous dextrose and a fair trial of starvation and good medical management. If operation is performed in these cases of the acute bleeding type, many of the patients will die on the operating table in spite of emergency blood transfusions, because there may be an esophageal varix as the cause of the bleeding and the operator cannot tell whether it is an ulcer case or not unless there was a previous roentgen examination made. The desired end-result of any procedure is to relieve the patient of his symptoms as safely as possible and to allow him to be self-supporting. Every case of duodenal ulcer should continue to be under good medical supervision, whether the patient has had any surgical treatment or the type of surgery advised.

Dr. Frank H. Lahey, Boston: I feel sure that the outcome of these discussions leaves one with the feeling that the procedure is largely affected by whether one is a physician, a surgeon or, most important of all, a patient.

Dr. A. A. Strauss, Chicago: I doubt whether much will happen to a successful subtotal resection at the end of ten years—I mean one that has been successful for ten years—and I am afraid some of us in twenty-five years won't be here to know what happens. But it cannot be denied that our results correspond with the results of the various clinics in other countries, and I believe a human being in Austria is the same as one in New York. As to the anemias, we have had only two cases of anemia. One was in a case presenting diarrhea before operation and diarrhea after operation. This diarrhea has ceased and the anemia has disappeared. One patient still has anemia. That was in the case of a bleeding ulcer, and the patient has never recovered from anemia. These are the only patients that I know of in our series of 221 resected cases that had anemia. As to the point that Dr. Brooks made, we believe that 95 per cent of all ulcers stop bleeding and the blood transfusion helps to stop the hemorrhage, and then we operate only if there is a history of a fatal or near-fatal previous hemorrhage. We believe that a patient who comes into the hospital with a second hemorrhage should be operated on within two or three weeks after the hemorrhage has ceased, with several blood transfusions, and then a subtotal resection done. About 20 per cent of the patients who come to us—in a group we get a large number of patients who have been in various clinics—are operated on. We believe that the patients on whom we operate, usually for clover-leaf deformities of the duodenum, are suffering from an anatomic deformity, in other words a partial anatomic obstruction, which no medical treatment can cure; and those are the majority of the cases in which we do a subtotal resection. We know that 65 per cent or more of the patients that are operated on have a duodenal ulcer penetrating the posterior wall, and those are the cases that we believe are distinctly surgical and not medical.

Dr. Moses Behrend, Philadelphia: I am glad Dr. Strauss and his co-workers mentioned the fact concerning the clamps. I still use the clamps, but the more I use them the less I like to use them. I believe that a great deal of harm is done by the use of clamps, especially the Payr clamp. Entirely too much pressure is exerted on the delicate structures of the stomach and duodenum. Concerning acute hemorrhage, I thought some exception would be taken to that statement; but the more I see of these cases of bleeding, the more I believe that they should be treated the same as any other case in which there is bleeding. With the proper preoperative treatment, such as blood transfusions, dextrose and all the things that have been mentioned here, there is no reason why operation cannot be performed ten or twelve hours after the hemorrhage. I have seen no harm result from this, but I have seen a lot of good, and I have lost no patients as a result of operative intervention in those cases. It is true, as Dr. Lewisohn has stated, that these ulcers usually occur on the caudal side of the pylorus, on the posterior wall of the duodenum or on the posterior wall of the stomach, and one should never hesitate, if there is no exterior sign of ulcer, such as stippling of the serous coat, to do a gastrotomy or a duodenotomy and find out where the bleeding point is. That is the proper procedure. I have never experienced a hemorrhage occurring two or three months before perforation. I have never had a case of that character. In all my cases there was either bleeding or perforation. As for subtotal resection versus gastro-enterostomy, I still feel that one ought to choose the operation for the individual case and that it doesn't seem right to make a dogmatic statement concerning this fact, that gastrectomy should be done in almost every case in which a duodenal ulcer is found. I believe that it depends solely on the judgment of the surgeon, the condition of the patient and the patient himself.

SUBCUTANEOUS NODULES IN RHEUMATOID (CHRONIC INFECTIOUS) ARTHRITIS *

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AND
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The occurrence of subcutaneous nodules in patients suffering from rheumatic fever has long been recognized and has been the subject of intensive investigation by many workers. Carey Coombs [1] has recently stated that of all manifestations of orthodox rheumatic infection—carditis, polyarthritis, subcutaneous nodules and chorea—the subcutaneous nodule is the most "rheumatic" of all. Swift [2] and other investigators have from time to time expressed similar views. Considerably less attention, however, has been paid to the subcutaneous nodules that occur in patients afflicted with rheumatoid arthritis [3] notwithstanding the fact that in this disease such a manifestation is an even more striking phenomenon.

One of the oldest and, at the same time, one of the most complete descriptions of these nodules is that given by C. O. Hawthorne [4] in a monograph in which he describes the occurrence of subcutaneous nodules in a series of six patients and expresses the opinion that rheumatic fever and rheumatoid arthritis are different manifestations of the same fundamental process. Histologic descriptions, however, are entirely lacking and there remains an element of doubt as to whether some of his cases may not have been cases of gout. Garrod,[5] in his classic description of rheumatoid arthritis in 1910, refers to the occurrence of subcutaneous nodules in this disease. On clinical grounds Garrod differentiates these nodules from those found in rheumatic fever, but no histologic studies are presented. Wick [6] of Vienna in 1910 described similar nodules and called attention to the relationship between them and those found in rheumatic fever. In 1926, Coates and Coombs [7] described the histologic structure of subcutaneous nodules in three cases—one of rheumatic fever, one of rheumatoid arthritis and one of Still's disease. They conclude that the nodules in the three diseases are very closely related if not identical structures. In 1928 Freund [8] published a full description of the nodules and thoroughly discussed the relationship between rheumatic fever and rheumatoid arthritis.

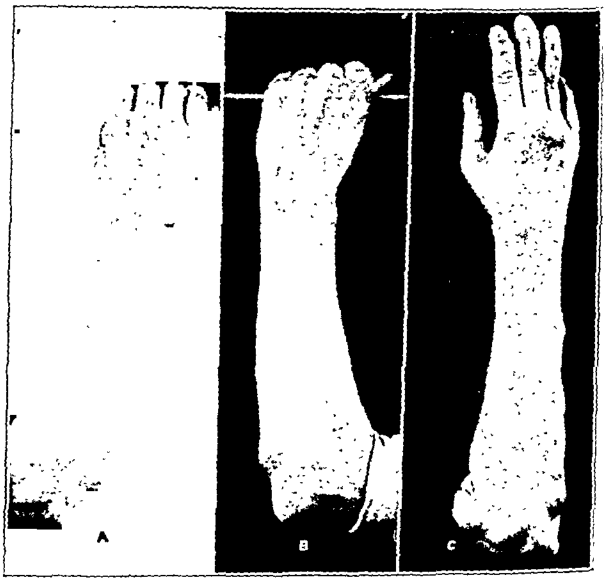

Fig. 1.—Subcutaneous nodules in rheumatoid arthritis: *A*, *B*, symmetrical distribution from 4 to 5 cm. distal to olecranon. *C*, large nodules on dorsal surface of forearm; note typical "rheumatoid" deformity of hand.

Since the establishment of the arthritic clinic in this hospital a year ago, subcutaneous nodules have been observed in forty patients. Approximately 200 patients with true rheumatoid arthritis have been seen in the clinic during this period, so that the incidence of patients with nodules is relatively high—approximately 20 per cent. However, since attention has been focused on this particular phenomenon, the incidence among patients at large is possibly somewhat less.

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* From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Arthritic Clinic of the Presbyterian Hospital. (The Arthritic Clinic of the *Presbyterian* Hospital is supported by the Faulkner Memorial Fund.)

[1] Coombs, Carey: Rheumatic Heart Disease, New York, William Wood & Co., *1924*, p. *6.*

[2] Swift, Homer: Rheumatic Fever: Hektoen Lecture, Billings Foundation, J. A. M. A. **92**: 2071 (June 22) 1929.

[3] The Arthritic Clinic of the *Presbyterian Hospital* has adopted the terminology and classification of rheumatic diseases advocated by the British Ministry of Health. Chronic joint changes are divided into the following categories: (1) rheumatoid arthritis (*American* "*chronic infectious*" and "atrophic"); (2) osteo-arthritis (American "hypertrophic" and "degenerative"); (3) gout; (4) unclassified. This classification has been recommended by the International *League for the Control of Rheumatism* and therefore possesses the advantage of widespread use.

[4] Hawthorne, C. O.: [illegible] Rheumatoid Arthritis and Subcutaneous Nodules, London, [illegible]

[5] Garrod, A. E., in A[illegible] H. D.: A System of Medicine, New York, Macmillan Company **3**: 3, 1910.

[6] Wick, L.: Wien. med. Wchnschr. **31**: 1804, *1910*.

[7] Coates, Vincent; and Coombs, C. F.: Arch. Dis. Childhood **1**: 183 (Aug.) 1926.

[8] Freund. E.: Wien. Arch. f. inn. Med. ***16**: 73 (Oct.) 1928.*

The nodules have been observed only in cases of typical rheumatoid arthritis and in one case of Still's disease. They have never been recognized in cases of osteo- (hypertrophic, degenerative) arthritis. Three of the patients in whom the nodules occurred presented a history of a previous attack of rheumatic fever. Four patients showed definite evidence of rheumatic heart involvement. In one patient the development of arthritis and the appearance of nodules appeared to bear a definite relationship to a previous attack of scarlet fever.

DETAILED OBSERVATIONS OF NODULES

Size.—The nodules vary in size from small, scarcely palpable, seedlike bodies to large excrescences the size of olives.

Situation.—The site at which they are most commonly observed is on the dorsal surface of the forearm at a point about 4 cm. distal to the olecranon. They are also seen over the olecranon itself, in the wall of the olecranon bursa, over the dorsum of the forearm and hands, over the knees, the sacrum and the scalp.

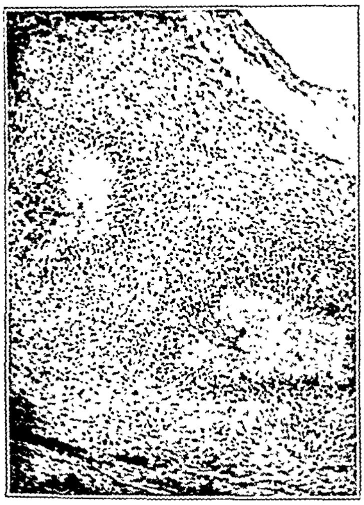

Fig. 2.—Appearance of a subcutaneous nodule in rheumatoid arthritis. (Hemotoxylin and eosin stain, low power.) Areas of central necrosis surrounded by zones of radially disposed histiocytic cells.

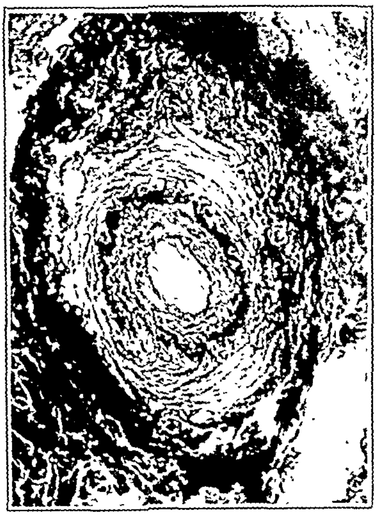

Fig. 3.—Vascular lesions of a subcutaneous nodule in rheumatoid arthritis. (Elastica stain, high power.) Subendothelial hyperplasia, splitting of elastica and formation of a new internal elastic membrane.

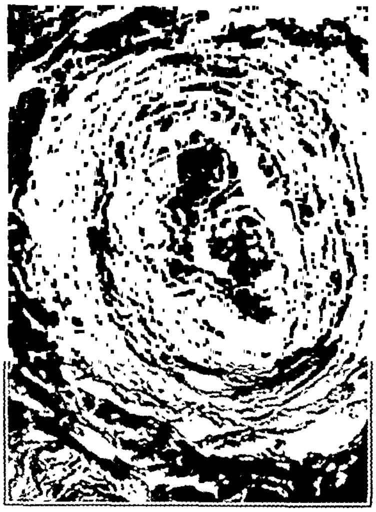

Fig. 4.—Vascular lesions of a subcutaneous nodule in rheumatoid arthritis. (Elastica stain, high power.) Arteritis verrucosa; polypoid projection from arterial wall into lumen of vessel.

Consistency and Attachment.—The nodules are usually moderately firm in consistency and discrete in their outline. They always occur in the subcutaneous tissue; they are not attached to either the skin or the underlying periosteum but frequently show a relationship to tendon sheaths and the walls of bursae.

Evolution and Duration.—As a rule these nodules develop slowly and persist over long periods of time—frequently for many years. The smaller ones, however, run a more acute course and may appear and disappear within a few months, occasionally within a few weeks.

Type of Case and Prognosis.—These structures are, for the most part, observed in severe cases and generally indicate an unfavorable prognosis.

Pain.—The nodules are never painful and only in rare instances do they cause the patient any inconvenience.

Histologic and Bacteriologic Examination.—Nodules have been excised from fourteen patients and subjected to careful histologic and bacteriologic examination. All the material examined shows a striking, uniform and characteristic picture. Histologically the essential features may be briefly outlined as follows:[9]

1. An area of central necrosis, apparently due in its earliest stages to a gelatinous swelling and disintegration of collagen bundles. Depending on the age of the nodule and the severity of the process there is a variable amount of fibrin deposition and inflammatory cell infiltration. As a rule the necrosis is much more extensive and the process much less acute than that seen in rheumatic fever nodules, but all intermediate stages may be seen.

2. A surrounding zone of peculiar and characteristically arranged large mononuclear cells. These cells are, for the most part, disposed in radial fashion and are largely responsible for the characteristic appearance of the whole lesion.

3. An enclosing zone of dense and relatively avascular fibrous tissue. The blood vessels in the area of the nodules themselves only rarely show significant changes, but the arterioles and capillaries in the surrounding tissue are the site of characteristic lesions. These may be summarized as follows:

(*a*) Subendothelial deposition of fibrin, hyperplasia of subendothelial cells, narrowing and even occlusion of the lumen, and, in some instances, canalization of the hyperplastic intima.

(*b*) Splitting of the elastica, and occasionally the formation of a new internal elastic coat; polypoid projections into the lumen.

(*c*) Perivascular cell infiltration by large mononuclear and small round cells.

The bacteriologic investigations have been entirely negative.

With the exception of those peculiar to rheumatic fever, similar nodules have not been observed in any other disease. There is no relationship between this manifestation of rheumatoid disease and the cutaneous and subcutaneous lesions encountered in syphilis, gout or tuberculosis.

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[9] We are indebted to Dr. A. M. Pappenheimer of the Department of Pathology, Columbia University College of Physicians and Surgeons, for his assistance in the study of the nodules. More complete descriptions will shortly be published with his collaboration.

This study therefore sustains the following conclusions:

1. The subcutaneous nodule occuring in rheumatoid arthritis is a classic lesion of this disease.
2. The histologic appearance of these nodules is uniform and highly characteristic.
3. There is a striking histologic resemblance between the subcutaneous nodules occurring in rheumatic fever and those observed in rheumatoid arthritis.

COMMENT

The relationship between rheumatic fever and rheumatoid arthritis has long been a matter of speculation among clinical observers. Since the time of Heberden (1782) and Haygarth (1805), who were first responsible for the distinction between "acute" and "chronic" rheumatism, the opinion of clinicians has been divided into two schools: those who maintain that the two conditions are entirely separate diseases, and those who consider that they are different manifestations of the same fundamental pathologic process. Among the proponents of the former concept may be mentioned Adams (1857); A. B. Garrod (1859), who first employed the term "rheumatoid arthritis"; Bristow (1884); Fagge (1886); Osler (1892), and Sir A. E. Garrod (1908). Supporters of the contrary theory were Jonathan Hutchison (1881), Charcot (1881), Sir Dyce Duckworth (1884) and Hawthorne (1900). More recently the conception that the two conditions are different manifestations of the same process has received support from Kahlmeter[10] in Sweden and Coates[11] in England.

It is not our purpose in this communication to support either of the two theories or to survey the clinical evidence for or against either hypothesis. The striking histologic resemblance of the subcutaneous nodules in the two conditions suggests the possibility that these two clinical entities may be different manifestations of the same fundamental disease process. However, it will not be possible to express a final opinion as to the relationship of rheumatic fever and rheumatoid arthritis until the etiology of both conditions is definitely established.

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[10] Kahlmeter, G.: Acta Rheumatol. **1**: 31, 1930.
[11] Coates, Vincent: Proc. Roy. Soc. Med. **23**: 587 (Feb.) 1930.

Unusual Mental Honesty.—The scientific mind in its purest form . . . is one that functions invariably in the light of truth, and one that is entirely unbiased by ulterior motives. It is not something that is possessed by men of science alone, nor are they always in possession of it; it is quite as much a characteristic of artists, or of men in other professions. It reveals itself, to a considerable degree, in that unusual mental honesty which the scientist displays in doing his work. . . . A mental bias may enter into his zeal for facts as much as it may disrupt the clear reasoning of a layman; and yet both may have the "scientific mind" when they surmount the inferences and generalizations that are common to the ordinary mind. Since the works of art and the theories of science are the achievements of their creators, they necessarily show both the strength and the limitations of the minds that conceive them. . . . If science and art can bring man to a fuller comprehension of his relation to the universe and his place in nature, his religion, philosophy and esthetics will be profoundly affected: but science has not yet advanced far enough to dictate the terms of understanding or appreciation of these branches of thought, even though we are constantly being called upon from every quarter of the scientific world to listen to the new discoveries. —Saidla, L. E., and Gibbs, W. W.: Science and the Scientific Mind, New York, McGraw-Hill Book Company, Inc., 1930.

GROWTH OF BONE AND DEVELOPMENT OF RICKETS

RELATIVE SIGNIFICANCE OF CERTAIN ASSOCIATED FACTORS *

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This work was undertaken not as a study of rickets but rather as a series of observations of the bone growth of normal, well infants, between 1 month and 1 year of age. The material for the study included fifty infants from private practice, ten infants from an institution and ten from a social center.

Standardized physical examinations and roentgenograms of the wrists were made at monthly intervals. Whenever possible, blood calcium and phosphorus determinations were made at the same time. A modification of Clark and Collip's[1] method was used for the blood calcium, and the Fiske-Subbarow[2] method for the phosphorus. The physical examinations were checked by three people with the same criteria in mind. The roentgenograms were taken by one technician using a three-eighths second exposure, at a distance of 35 inches, 50 peak kilovolts, 50 milliamperes, and 3-inch spark gap. The roentgenographic observations were interpreted by Dr. Sherwood Moore of the Barnes Hospital, Washington University School of Medicine, St. Louis.

The relative value of the different criteria for the diagnosis of rickets is still a subject of discussion. A few years ago Park[3] defined rickets as a disturbance of the metabolism in which the first detectable sign is a diminution of the phosphorus content of the blood. In a more recent paper Hess,[4] working with rats, advanced the idea that there is a local as well as a systemic factor which prevents proper calcification at the epiphyses. He obtained normal blood values without healing of ricketic lesions. The presence or absence of rickets, in the latter study, was determined by roentgenograms. As a result of the tendency toward greater dependence on the roentgenographic observations, it becomes of increasing importance that the normal and the ricketic changes in the growing bone be clearly defined.

In rickets the ulna is described by Hess[5] as presenting a "cupped" or "dished out" appearance with a spreading at the distal end of the bone. The epiphyseal margin of the radius presents an irregular contour, a spongy or rarefied appearance with the later development of an area of increased density.

The roentgenograms of the wrists of the infants of this study were examined with reference to each of these changes and the results tabulated. Of the seventy infants observed, eight, or 11.5 per cent, were classified by the roentgenologist as having normal bone development during the period they were under observation.

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* Read before the Section on Diseases of Children at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Clark, E. P., and Collip, J. B.: J. Biol. Chem. **63**: 461 (March) 1925.

[2] Fiske, C. H., and Subbarow, Yellapragada: J. Biol. Chem. **65**: 375 (Dec.) 1925.

[3] Park, E. A.: The Etiology of Rickets, Physiol. Rev. **3**: 106 (Jan.) 1923.

[4] Hess, A. F.; Weinstock, Mildred; Rivkin, Helen; and Gross, Joseph: Lack of Relationship Between the Development and Cure of Rickets and the Inorganic Phosphorus Concentration of the Blood, J. Biol. Chem. **87**: 37 (May) 1930.

[5] Hess, A. F.: Rickets, Including Osteomalacia and Tetany, Philadelphia, Lea & Febiger, 1929.

Sixty-two, or 88.5 per cent, had roentgenograms which showed one or more irregularities, such as cupping and pointing of the ulna, an irregularity of the distal margin or an increased density of the lower metaphyses of the radius. The number and intensity of these changes varied widely. Eighty-four per cent of all these changes took place between 2 and 6 months of age.

Such observations at a glance indicate an inadequacy of the rickets-preventing factors and require a careful examination of the food and environment of the infants.

With the exception of the ten infants from the social center, all these children were receiving intelligent care. Milk was the chief item of diet and was fed in quantities equal to or greater than those commonly accepted as requirements at these ages. All of the children received orange juice. Four infants were breast fed until 6 months of age. None of the children received any proprietary foods or high carbohydrate diets. Vegetables, egg yolk and small quantities of cereal were added at age periods varying from 4 to 7 months. The study was made from December to May, inclusive, so the factor of sunshine was negligible. None of the infants received viosterol or ultraviolet ray exposures. The quantity of cod liver oil varied; hence a more detailed investigation of the influence of this article on the bone development was attempted.

TABLE 1.—*Instances of Irregularities of Bone Development of Infants from 3 to 12 Months of Age: Effect of Cod Liver Oil*

Daily	Number Examined	Number Showing Irregularities	Per Cent Showing Irregularities
No cod liver oil..........	38	29	77
Less than one teaspoonful..	42	29	69
One teaspoonful	70	55	79

This study included only seventy individuals, but every child was counted each time he was examined. Thus during the course of observation these 70 individuals became 150 infants, as they appeared 150 times for examination. This was made necessary by the fact that some of the infants belonged in the "no cod liver oil" group for the first one or two examinations and proceeded to the other groups as the cod liver oil was increased. Since irregularities in roentgenograms of bones rarely appeared before 2 months of age, all infants of this age and under have been omitted from this calculation (table 1). Of thirty-eight examinations of infants, 3 to 12 months of age receiving no cod liver oil, twenty-nine, or 77 per cent, showed some irregularity of bone development. Of forty-two receiving less than one teaspoonful daily, twenty-nine, or 69 per cent, showed irregularities, and of seventy receiving one teaspoonful of cod liver oil daily, fifty-five, or 79 per cent, presented one or more irregularities of bone development.

The presence of this amount of cod liver oil in the diet of these infants did not produce symmetrical bone development. The greatest percentage of irregularities occurred in the group receiving the most cod liver oil; i. e., one teaspoonful daily.

These figures may be summarized with reference to growth and some interesting relationships develop. As in the study of the effect of cod liver oil, the babies were counted as many times as they appeared for examination and were divided into three groups. Those whose gain in weight averaged 5 ounces (140 Gm.) a week for that month were designated as "average." Those who gained less were classified as "slow" and those gaining more were designated as "rapid" (table 2).

Of forty-four infants in the slowly growing group, thirteen, or 30 per cent, showed irregularities of bone development. Of sixty-seven in the average growing group, forty, or 60 per cent, and of seventy-seven in the rapidly gaining group, sixty-eight, or 89 per cent, showed some of the changes frequently called ricketic.

TABLE 2.—*Instances of Irregularities of Bone Development of Infants: Effect of Rate of Growth*

Growth	Number Examined	Number Showing Irregularities	Per Cent Showing Irregularities
1 to 12 months of age:			
Slow	44	13	30
Average	67	40	60
Rapid	77	68	89
3 to 12 months of age:			
Slow	27	14	52
Average	58	38	66
Rapid	65	61	94

Omitting the thirty-eight roentgenograms of infants 2 months of age and under, fourteen, or 52 per cent, of twenty-seven infants in the slowly growing group showed irregularities of bone development. Of fifty-eight in the average group, thirty-eight, or 66 per cent, showed irregularities. Sixty-one, or 94 per cent, of the sixty-five infants in the rapidly gaining group showed some irregularities of bone growth.

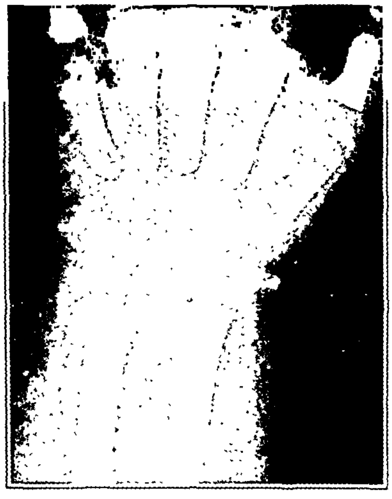

Fig. 1.—Bones with smooth and regular contours; classified as normal by roentgenologist.

Much has been said of the rickets produced by rapid growth, but should it be necessary to stunt infants in order to prevent the development of rickets? Should not an infant be allowed to gain as he will provided his food intake is properly balanced? It may be that one teaspoonful of cod liver oil is an inadequate amount for a rapidly growing infant, but we believe one should consider not only whether or not infants grow too rapidly or receive too little cod liver oil but also whether these minor bone changes in the early months of life are ricketic in nature.

TABLE 3.—*Appearance of the Physical Signs of Rickets in Seventy Infants from 1 Month to 1 Year of Age*

Characteristic	Instances	Per Cent
Beading	48	70
Flaring of ribs.....................	1	1.4
Slow closing of fontanel............	4	5.7
Thickened wrists	..	..
Square head	..	..
Pot bellies	..	..
Bowlegs	.	..

The prevalence of the physical changes ordinarily associated with rickets is shown in table 3.

In many hospitals and private clinics a diagnosis of rickets is recorded on the basis of a perceptible beading of the ribs. We doubt whether many but experts are capable of distinguishing between moderate ricketic beading and the normal angulation. Of seventy infants under 1 year of age, forty-eight, or 70 per cent, had prominent costochondral junctions. The accuracy of this examination seemed so questionable that we have disregarded it as of any significance at this early age.

Four infants (5.7 per cent) had slow closing of the fontanel, as evidenced by delayed closing of sutures and posterior fontanel and by the size of the anterior fontanel.

One infant developed moderate flaring of the ribs. Other clinical signs, such as thickening of the wrists, square head, pot belly and bowlegs, were absent. Craniotabes was not noted in any case.

In this entire series, only two blood phosphorus values were below the normal range. Both of these were from infants who were not receiving cod liver oil and who were more than 6 months of age. These low values were accompanied by roentgenograms which showed cupping, spreading and irregularity as did many of the other pictures but differed from the other pictures in that the bones appeared spongy and rarefied.

These irregularities are illustrated in the accompanying pictures. The bones shown in figure 1 have a regular contour and an apparently dense consistency and are typical of the bone development rated as normal by the roentgenologist. The bones in figure 2 are dense, but the distal end of the ulna spreads and there are irregular projections from the radius. The calcium is not being laid down in a symmetrical pattern. These two factors and an increase of density of the lower metaphyses of the radius are typical of the irregularities presented by the roentgenograms of the infants of this study.

Such changes as these took place when the infants were in excellent health, receiving an abundance of milk, one teaspoonful of cod liver oil daily, and making a gain of from 5 to 10 ounces (from 140 to 285 Gm.) a week. Without exception the blood phosphorus values of these infants ranged from 5 to 7 mg. per hundred cubic centimeters.

Figure 3 demonstrates spreading of the ulna and irregularity of the radius but presents a fuzziness or rarefaction not noted in the two previous pictures. This infant came under observation at 6 months of age with a blood phosphorus of 2.9 mg. per hundred cubic centimeters. One other infant of this series presented a similar picture. At 10 months of age this infant had a blood phosphorus value of 3 mg. and the roentgenograms of the wrists showed a fuzziness and rarefaction of these bones. Two and four months previously the blood phosphorus values of this infant had been 6 mg. and the roentgenograms of the wrists showed no decrease in the density of the bones.

One teaspoonful of cod liver oil was added to the daily diet of these two infants, and change in the bones was noted at the end of two weeks. This change consisted of an increase in density and is illustrated in figure 4. The improvement in calcification was steady, though the phosphorus content of the blood did not reach 5 mg. until about four weeks after cod liver oil was instituted.

As the roentgenologist has suggested, it may be that the difference between the slight irregularities of the solid bone shown in figure 2 and the fuzziness evident in figure 3 are differences only in degree of change. If this is true, then practically all of the infants were potentially ricketic and present ideas of protection are scarcely adequate.

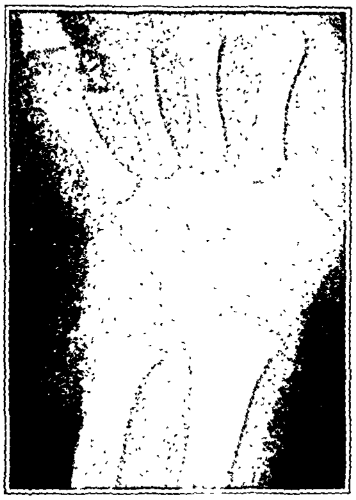

Fig. 2.—Pointing of ulna and irregular projections from distal end of radius.

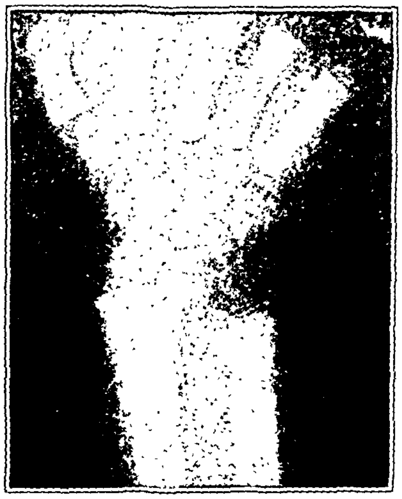

Fig. 3.—Bones of infant 6 months of age. Blood phosphorus 2.9 mg. per hundred cubic centimeters. Note irregularities and rarefaction.

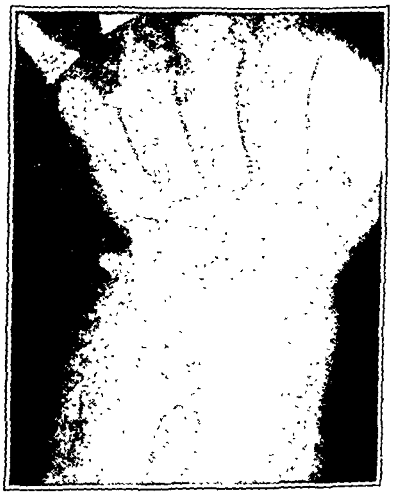

Fig. 4.—Same child as in figure 3, three weeks later. Blood phosphorus 4.1 mg. per hundred cubic centimeters.

We do not doubt that these last two infants had rickets, but we wonder whether any of the others had rickets. Is it a fact that bone growth in a well, rapidly growing, active infant must be symmetrical in order to be nonricketic? The suggestion that irregularities unaccompanied by a decreased density may be physiologic and not pathologic is not altogether original. Dr. Martha Eliot[6] made a similar suggestion several years ago as a result of her survey in New Haven. She reported "slight rickets" before 6 months of age in 85 per cent of the infants observed by her. In our series the percentage is slightly lower than this; 75 per cent of our infants gave roentgenographic evidence of slight rickets before they were 6 months of age.

Numerous surveys of the prevalence of rickets have been made all over the world; and surveys in our own country have placed the incidence of this condition at a high figure. We believe that we are fairly well advanced both in the art and the science of infant feeding but if from 75 to 85 per cent of the infants show a pathologic development of bone during the first year of life there must be something wrong, either with our methods of feeding or with our technic for diagnosis.

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[6] Eliot, Martha M.: The Control of Rickets, J. A. M. A. 85: 656 (Aug. 29) 1925.

Owing to the number of cases included and the limited period of observation, no definite conclusions can be drawn from this study. However, the data collected up to this point would indicate that the bone growth of well fed, rapidly growing, active infants is not necessarily symmetrical during the first year of life and fails to conform to our standard conception of nonricketic bone development. Whether this is due to the absence of a sufficient quantity of vitamin D or to our present conception of the character of ricketic bone changes is a subject for further investigation.

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ABSTRACT OF DISCUSSION

DR. F. C. NEFF, Kansas City, Mo.: I think this study is good for any one who is in the habit of examining roentgenograms of infants. One sees perfectly normal infants sometimes with the fontanel closed at 7 or 8 months. One also sees the fontanel open in perfectly normal infants sometimes 14 to 16 months of age. That is not the rule but it happens sometimes. I have seen a closed fontanel in a Negro baby, aged 12 months, with definite rickets. I have seen the fontanel closed and the child have all the other bone manifestations of rickets.

DR. E. C. MITCHELL, Memphis, Tenn.: Perhaps after two more years of investigation along the same line it may be possible to draw more definite conclusions. It seems to me that statistics on rickets now being given have no definite basis. It is our idea that especially in young children the so-called ricketic changes might be simply physiologic.

ACUTE INTESTINAL OBSTRUCTION *

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Whatever may be the cause, or (from the duodenum to the rectum) whenever acute, persistent stricture of the lumen of the alimentary tract develops, there is created the gravest form of abdominal emergency.

Initial manifestations, as mild as a common, transient "gas colic," may progress so swiftly that but few hours suffice to accumulate pathologic changes of a degree and extent indicative of early death. Again, abrupt, stormy, painful beginning-symptoms, suggesting rapid and extensive enteric damage, often enough are followed by such quiescence of distress as to present a problem equally puzzling from the points of view of diagnosis and of management. In either type of onset, physical examination of the abdomen may yield few anomalies; the classic or textbook signs of intestinal obstruction are lacking or confused. Indeed, as our material shows, what most commonly are considered as signs of entero or colonic obstruction represent largely the manifestation of chronic, slowly developing types of lesion in which the neuromuscular integrity of the intestine is yet maintained and the mechanical consequences of stenosis are not yet masked or hidden by those evidences of acute, local and systemic intoxication present when obstruction occurs suddenly.

If I may be permitted to introduce certain implied conclusions, before submitting the facts that warrant them, I suggest that the clinical approach to a better understanding of acute intestinal obstruction largely is concerned with the following:

1. Proof that permanent and absolute intestinal obstruction actually exists.
2. Determination at what portion the intestine is involved: (*a*) *high or low jejunum;* (*b*) *high or low ileum;* (*c*) the proximal or the distal colon; (*d*) the small and large bowels together: e. g., intussusception or a union between the two.
3. Appraisal of the degree of structural damage present in the parts involved.
4. Determination of the causes operating to produce the obstruction.
5. Apart from consideration of the mechanical faults and their local pathologic sequelae, an appreciation of what systemic ("toxic," chemicophysiologic) or "constitutional" alterations have accumulated and which themselves introduce grave prognostic as well as therapeutic problems.

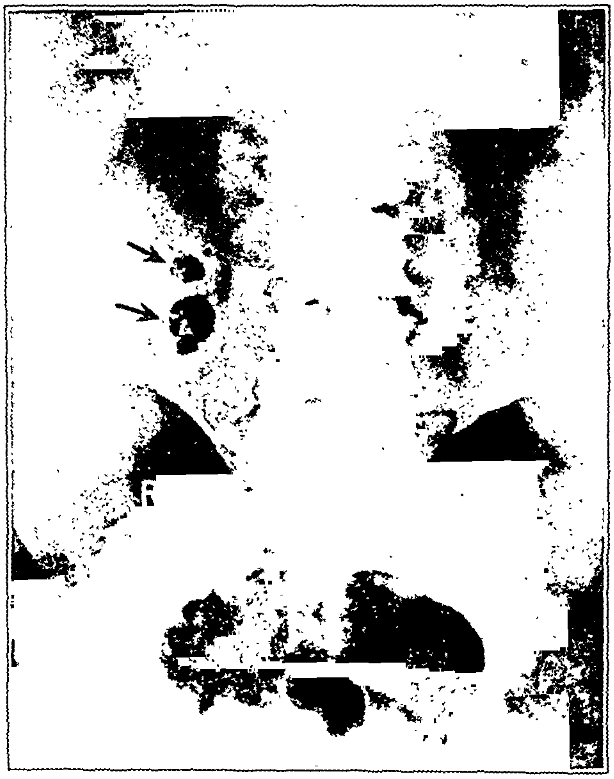

Fig. 1.—Roentgen "scout plate" of acute obstruction of lower ileum with subsequent perforation and, indicated by arrows, large dose of *bismuth subnitrate, given "to control diarrhea," lying free in the peritoneal sac.* The patient was treated expectantly and recovered.

In this series of instances of acute intestinal obstruction, twenty-four patients died (41 per cent). Since such high mortality is possible when there exists the closest teamwork between internist and surgeon, no further emphasis is needed to demonstrate that acute intestinal obstruction is an emergency of first rank and to suggest that at present, perhaps, the situation is not so well handled clinically as it might be. High as is the mortality in this series, it should be mentioned that the mortality is approximately 100 per cent when the condition is not recognized or is diagnosed and treated late. Certainly, lateness in recognition, particularly in the aged, was responsible for numerous deaths among our patients.

MATERIAL

This report summarizes experience with fifty-six patients affected with acute, intestinal obstruction. Fifty-two had abdominal section; two came to autopsy without operation, after perforating; two recovered without operation. In the last two patients, proof of acute intestinal obstruction was adequate, clinically, at the time, and later was proved by roentgen and physical examination. I am indebted to my colleagues, particularly to Dr. Nelson M. Percy of Augustana Hospital, for help and opportunity to study records and operative and pathologic observations.

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* Read before the Section on Gastro-Enterology and Proctology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

Space does not permit a complete statistical study of this series; in fact, on this occasion, such seems neither necessary nor desirable. I shall avoid all tabulations but those needed to clarify or emphasize my observations.

There were thirty-five women and twenty-one men in the series. The average age, for the group, was 40.9 years; for women, 48.5 years (a range of from 20 to 68 years), and for men, 31.2 years (a range of from 6 months to 66 years). The patients came from families of moderate circumstances; there were no malnourished or destitute folk on whom any major operative procedures would not be well borne or who, through poverty or ignorance, might not consult physicians when illness appeared. Our mortality of 41 per cent, therefore, does not arise because low intelligence or poverty kept patients away from medical management when first they became ill; doubtless the average charity services of large public institutions would return far higher death rates for like types of lesion in the same age groups. High mortality largely is due to the clinical difficulty of differentiating the early and safely managed stages of acute intestinal obstruction from a host of transient, simple forms of digestive or motor, functional disturbances of the intestine, or of common pathologic processes such as appendicitis, disease of the gallbladder, enteritis, pelvic upsets and the like. In fact, in this series, of those dying, only three patients appeared within 24 hours of the onset of trouble, five from 24 to 48 hours, two within 48 to 72 hours and as many as ten later than 72 hours. Several were as late as 150 hours. Other things being equal, the mortality is in direct ratio to the delay in seeking relief.

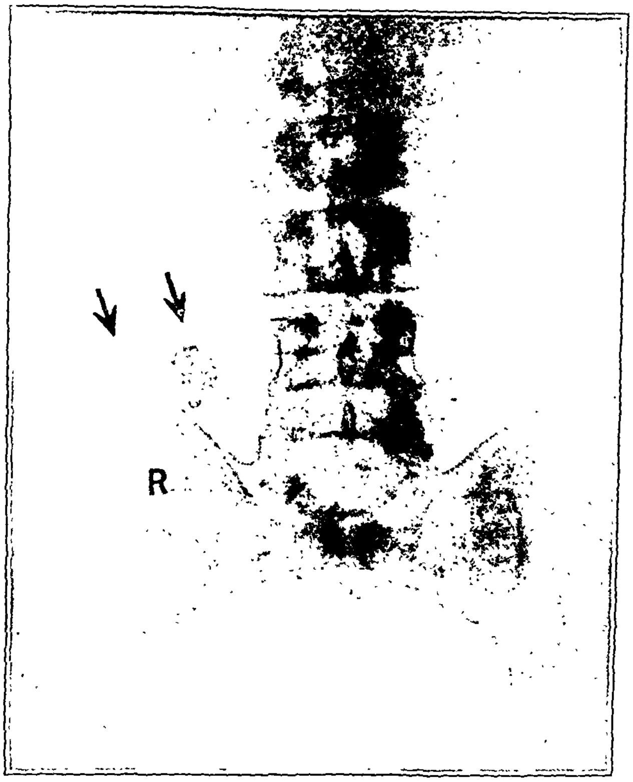

Fig. 2.—Roentgen "scout plate" of same patient as illustrated in figure 1 made five months later showing free bismuth subnitrate, indicated by arrows, lying in peritoneal sac and gradually becoming encapsulated by scar tissue. Patient symptom free with weight gain of nearly 25 pounds (11 Kg.) since initial illness.

CLINICAL PICTURE

1. *Criteria Determining the Existence of Acute, Permanent Intestinal Obstruction.*—These are varied and not so clean-cut as the textbooks suggest. The clinician always should suspect that the "acute abdomen" may mean acute intestinal obstruction and interpret signs and symptoms with that condition in mind, by history, physical and laboratory methods. Then he will have the patient available for management before complications such as peritonitis, perforation or hemorrhage have clouded the picture, or before that state called, loosely, "toxemia" or "acidosis" (recently shown to have peculiar physiologic as well as prognostic significance by experimental surgeons, notably Dragstedt) has supervened.

Within certain limits, the clinical picture also depends on what portion of the bowel is involved. In general, the nearer to the stomach is the obstruction, the more acutely fulminant are the symptoms and the graver is the prognosis. Low intestinal obstruction, even though it is acute in character, gives less dramatic signs of distress, is less virulently toxic, allows longer study and permits a more encouraging immediate prognosis.

The one symptom common to all the patients with this disorder was abdominal pain. It varied in degree, kind and location. Intelligent patients may remember just where the first point of distress appeared; appreciation and consideration of this, roughly, may indicate what portion of the bowel is involved. Usually, the initial pains accompanying small bowel lesions are sharp, cramping or knife-like; they are exhibited in paroxysms. Between the paroxysms, commonly there is diffuse abdominal discomfort. When the lesion involves only the colon, the pain is rarely so paroxysmally exquisite as when the jejunum or the ileum is involved. The normally much slower rate of peristaltic contraction of the colon is not "stepped up" so high in so brief a time. In such circumstances, a greater linear area of smooth muscle is included and the resulting powerful contractile response increases painful tonus less abruptly than when the small intestine becomes acutely obstructed. Hence, the patient with his colon acutely obstructed is rarely found bent double, tossing about in agony and attempting to limit intestinal movements by pressure of the hand on the abdomen or by shallow breathing.

In this series, prostrating paroxysmal pain was the chief initial symptom in 82 per cent of instances of acute obstruction of the small bowel and of 8 per cent of those in which the colon was involved. Of the whole number of patients, these severe "cramps" were a feature of onset in 62 per cent.

Between the paroxysmal pains there appears a relatively comfortable period during which more or less generalized abdominal aching is present. These interim phases are of shorter duration when the jejenum or the ileum is involved than when the lesion is in the colon. This clinical picture persists until the patient is relieved medically or surgically or until such complications as hemorrhage, perforation or gangrene of the bowel occur. The original course of events—so important diagnostically—then is changed by the local signs, and the constitutional reaction caused by the special complication or series of complications appearing in the particular patient. In such circumstances, unless an accurate early history can be secured, often the only diagnosis possible is that of intestinal rupture and an associated peritonitis. How commonly one has to meet this situation is shown by our group of patients: at hospital entrance, twenty-eight patients (49 per cent) were "stretcher cases," twenty-seven (44 per cent) were at the febrile stage, twenty-eight (51 per cent) were in shock, and the average duration of illness for the series was forty-eight hours (women fifty-six hours, men thirty-four hours). It is the presence of these complications, each serious and each confusing the diagnosis, that is responsible in part for the high mortality.

At onset, of almost equal diagnostic value with abdominal pain, well localized, is vomiting with or without nausea. The vomiting is of the nature different from that of other abdominal conditions: it occurs without irritation by food or fluid intake; it occurs with or closely following paroxysmal pain; it may be continuously present from the beginning; often, it is of almost explosive character; it is not rarely profoundly exhausting and, owing to its robbing the body of fluid and the blood of chlorides—particularly the latter phenomenon—may quickly produce a form of "acidosis" leading to early death, in spite of correct diagnosis and most expert surgical procedures.

Through persistent vomiting, secretion of gastric juice rapidly ceases. Moreover, the composition of the blood may quickly be so altered as not to permit again the production of gastric juice. This changed composition of the blood, occurring as a consequence of prolonged vomiting in intestinal obstruction, may determine the outcome. Such emesis, unlike that of pyloric obstruction, is never accompanied by tetany. This different manifestation, when taken in connection with the chemical examination of the blood, i. e., extremely low blood chloride and alkaline radicals and the appearance of high nitrogen or protein substances, is of diagnostic as well as prognostic significance.

The absence of tetany, even were one not to be aware of the underlying cause of the emesis, disposes of the consideration of pyloric stenosis. The continuance of vomiting, without excessive dehydration and without tetany but with absence of gastric secretion and with the blood serum showing low chlorides and carbonates, no marked calcium deviation, but with progressively high nitrogen values, strongly suggests that the obstruction is in the jejunum, perhaps, occasionally in the high ileum, but, very rarely, in the low ileum and practically never in the colon alone.

For these observations credit is due to the surgical physiologists, notably to Dragstedt and to Ivy. It is unfortunate that the practical value of such studies is not more generally known. If, in instances of "acute abdomens," particularly when intestinal obstruction is suspected, carefully performed blood serum studies were viewed with respect to the information they can contribute diagnostically and prognostically, and if correction of these abnormalities of blood serum were an essential part of the scheme of clinical management, a great reduction in mortality would result. All too frequently now, even in clinics of high repute, expert surgical work for the relief of acute intestinal obstruction is seen to go for naught because no preoperative or postoperative observations have been made on the blood serum. Particularly does this apply in that group of patients in whom vomiting has been a major symptom from the onset of the disorder.

Fecal vomiting, provided the patient previously has been on fairly normal diet, is valuable clinical proof of intestinal obstruction. However, if the patient has long been a digestive invalid, his diet may have been far from normal in quantity or kind, and thus he may have a considerable degree of intestinal obstruction without fecal vomiting being exhibited; e. g., in 32 per cent of the patients in this series. When lesions are in the colon or the terminal ileum, fecal vomiting as a symptom may be lacking. Of the thirty-eight patients in whom emesis was markedly present, fecal vomiting occurred in eighteen (47 per cent). Its appearance had certain diagnostic and prognostic significance, as such emesis occurred only when the obstruction was of the jejunum or the ileum; never when the lesion was in the colon. Prognostically considered, 47 per cent of the patients in whom fecal vomiting appeared died within ten days.

To sudden pain and to vomiting, as symptoms suggesting acute intestinal obstruction, should be added acute constipation. Frequently, this may antedate the other symptoms. In a patient whose frequency of evacuation has been normal, when, without change in diet, in habits or in physical or mental routine, absolute constipation appears acutely, intestinal obstruction of some form or degree should be suspected. The suspicion becomes stronger if abdominal pain and nausea appear. In fourteen patients (25 per cent), acute constipation was sufficiently apparent to make an impression on the patient and to bring him under medical observation. When this symptom occurs prominently, most frequently the lesion is in the terminal ileum.

Bloody dysentery was an onset symptom in six patients of this series. It occurred in three, associated with severe acute abdominal pain, well localized in the right lower abdominal quadrant. In these instances the cause of the obstruction was intussusception. Two of the remaining patients were affected with chronic infectious ulcerative colitis, during exacerbations of which, obstruction and perforation of the low ileum took place. The sixth patient was one with cancer of the hepatic flexure of the colon, with perforation, pericolic abscess and acute obstruction.

Masked Signs of Acute Intestinal Obstruction.—The frequency with which patients appear when the actual signs of obstruction itself have become masked by the signs due to sequelae of the acute obstruction (peritonitis, hemorrhage, gangrene of the bowel) makes imperative a careful analysis of the early history. The records only too rarely show observations indicative of obstruction alone or pointing to the place where obstruction actually was. The average patient had been ailing with an abdominal disorder of acute type approximately two and a half days before he came under observation. While such a time factor made easier the diagnosis of well established intestinal obstruction, the clinical picture permitting accurate recognition of the location of the primary fault was clouded.

Most commonly the abdominal picture was that of impending or acute peritonitis. For the series, temperatures averaged 100.5 F. at first examination, with pulse of 95 and respiration 26 per minute. More than half the patients were "stretcher cases." Evidences that a grave disorder existed were apparent in pain-marked features, shallow respirations, the flush of fever, physical and mental restlessness and dehydration of the tissues. Examination of the urine almost invariably disclosed albumin and casts. At entrance, twenty-seven patients (49 per cent) were in shock; 60 per cent were febrile and in thirty-five patients (62 per cent) abdominal distention was marked. Visible peristalsis involving the small bowel was recognized in twelve patients (21 per cent) and that involving the large bowel in two. Free abdominal fluid was demonstrated in seventeen patients (30 per cent), in three instances it being due to cancer. After the initial diarrhea, the absence of bowel movement and the persistence of emesis, with or without intake of food (a caution that not always has been followed) proved characteristic for obstruction. Seven patients had been carelessly subjected to violent catharsis before entering the hospital. Five of these patients did not survive the operative procedure; the strong remedies had brought about rupture.

Determination of the Point of Obstruction.—This can be recognized only grossly even if patients are seen early. The high position of localized, abdominal pain, particularly when this pain is associated with visible, enteric peristalsis, nausea and vomiting, suggests jejunal or ileac obstruction. Intake of food promptly aggravates pain and is followed by emesis. In general, the more quickly emesis follows food intake, the more proximal is the point of obstruction. Food of fluid ingestion is rarely followed by early vomiting when the lesion is in the colon. Pain was far more prompt and more severe on food or fluid intake in enteric than in colon lesions. Rectal feeding rarely caused abdominal pain when the obstruction was in the small bowel except in those patients in whom the obstruction was in the small bowel within three feet of the ileocecal valve, and when the patent valve permitted free flow from the colon into the ileum. In those patients in whom some portion of the colon was adherent to the jejunum or to the ileum, the occurrence of pain on food ingestion or on rectal feeding gave rise to confusing conclusions.

ROENTGEN STUDIES

When acute intestinal obstructions are suspected, roentgen studies are to be condemned if such studies include the employment of barium mixtures. Four patients of this series had had x-ray progress-meals administered after there had accumulated sufficient proof, clinically, that an acute abdominal lesion existed. In all instances, the stimulus of the opaque meal, combined with the weight of the digestively inert barium, resulted in the acute intestinal obstructions being converted into acute intestinal perforations; the barium lay free in the peritoneal sacs (figs. 1 and 2). Only one patient recovered.

At times, certain valuable information may be secured by the roentgen study of the gas-filled loops of bowel. In the films, it may be possible to demonstrate approximately where the obstruction lies; at least, one may state with fair accuracy that the obstruction is in the small and not in the large bowel There are instances in which sufficiently sharp gas shadows are presented to enable the practitioner to make a definite diagnosis of a jejunal, in contradistinction to an ileac, obstruction. If roentgenograms can be made without loss of time and without unduly moving the patient about, they should form part of every routine examination. Not only may these "scout films" give information that is valuable diagnostically, but study of the gas shadows may prove of great help in aiding the surgeon better to plan his operative procedure. When perforation of the bowel already has taken place, and when the patient had previously been taking medicine such as bismuth, the shadow cast by the escaped opaque substance may indicate exactly where the perforation is.

In such circumstances, films serve as cautions against immediate operation. Proof of free-lying bismuth, shown roentgenologically, suggests a waiting policy that may save the patient's life.

PHYSICAL SIGNS

Physical examination of the abdomen is often disappointing should one expect positive information. If the patient is seen very early, a small (intussusception) or a large (cancer or abscess) swelling may be seen at or near the spot where the obstruction is located. This may also be a point of maximum tenderness on palpation. If the patient is not fat, one may at times see or feel peristaltic activity in the bowel proximal to the obstruction.

However, the picture changes so rapidly that on entrance to the hospital very few of the classic or textbook signs of obstruction are present. The abdomen resembles that common to any acute inflammatory process. In this series, abdominal distention was exhibited by twenty-five persons (42 per cent), free abdominal fluid by thirty-one (55 per cent), a mass or swelling more or less well defined by eighteen patients (32 per cent).

Peristaltic movements were not visible so frequently as is commonly assumed; for the whole group of fifty-six patients, they were seen in but eight instances (14 per cent). So-called ladder patterns were observed only three times. The operative observations in patients exhibiting visible peristalsis were: a band across the lower ileum; a band from the low ileum to the navel; intussusception of terminal ileum and ileocecal valve; obstruction of the descending colon; a band from the high jejunum to the stomach; a band from the ascending colon to the jejunum; a band involving both the lower jejunum and the low ileum, and five distinct adhesions between the hepatic flexure of the colon and the jejunum. Bulging navel was noted in six patients (10 per cent).

Certainly, in view of the definite and often extensive pathologic condition demonstrated at operations or at autopsy, the physical examination of the abdomen disclosed little of a "characteristic" nature. Indeed, our correct preoperative diagnosis of acute intestinal obstruction (forty-seven instances, or 84 per cent) would not have been possible had we relied only on the examination of the patient and had we disregarded a careful step-by-step history of exactly what happened symptomatically from the beginning of the illness.

As I have mentioned, fifty-two patients experienced abdominal section: two were hopeless as surgical risks, being practically moribund on entrance; two were so ill that laparatomy was deemed not wise. These two went on to perforation, localized abscess, were desperately ill, but made complete recovery in nine and fourteen weeks, respectively. In both instances the obstruction involved the ileum. The outcome of these two patients would appear to indicate that, oftener than is suspected, acute obstruction of the low ileum, where the surgical risk is great, might be treated best expectantly. If the shock of perforation is survived and the infection can be localized, spontaneous short-circuiting takes place and recovery is possible.

NATURE AND LOCATION OF THE OBSTRUCTION

In this series, the causes of the acute obstruction were considerably varied. It is interesting to note that, prior to the acute obstruction, more than 60 per cent of the patients already had had from one to as many as seventeen abdominal operations. The effects of these operations were important in the later production of acute obstruction.

Commonly enough to give the impression that previous abdominal operations were responsible for later acute obstructions was the incidence of "bands" and adhesions in the production of the disturbance. However, since Bryant has shown how frequently omental, mesenteric and intravisceral bands or adhesions are present in the embryo and the new-born, one must be cautious in ascribing the presence of such obstruction-producing agents to previous surgery.

In this series, acute obstruction from bands and adhesions occurred in forty-four patients (79 per cent). Their most common site was in the right lower quadrant, affecting the ileum most frequently. The mid and upper jejunum was next in point of frequency. Then followed in order the sigmoid, the transverse and the ascending portions of the colon. Volvulus was observed in the ileum or the jejunum five times; intussusception (through the ileocecal valve) twice; hernia of the ileum through the broad ligament three times; involvement of the ileum with the ovary and tube, three times; cancer, perforating and followed by abscess which involved the lower ileum or the jejunum, three times; acute ileus, twice; ulceration of the ileum with perforation and obstruction, three times; adhesive obstructing bands from the viscera (gallbladder, stomach, spleen, liver) six times; mesenteric thrombosis, once.

The obstruction was so acute and so complete that gangrene complicated the operative procedures, requiring resection of the viscera, in thirteen cases. The mortality was 85 per cent in this group in spite of prompt action, skilled surgery, blood transfusions, draining the proximal portion of the affected intestine and all known forms of supportive treatment. Those patients who had been given strong cathartics before entering the hospital fared particularly poorly. Certainly, in all patients in whom usually the bowels have moved normally, the appearance of acute constipation, with nausea and with or without nausea or vomiting, contraindicates catharsis: simple enemas are often a life saving measure and usually give comfort.

MANAGEMENT

While all patients in whom acute intestinal obstruction is diagnosed or is suspected are immediately or, potentially, surgical subjects, the internist may be of help in sending the patient to the surgeon as a reasonably good operative risk. Mouth feeding should be interdicted, gastric or intraduodenal lavage by the Rehfuss tube (introduced by a stiff wire stylet) begun early, catharsis forbidden and fluid (physiologic solution of sodium chloride or Ringer's solution) given into the colon by rectal drip and constantly. Abdominal examination, made early and often repeated, may locate the place of obstruction and give information relative to the occurrence of gangrene, perforation or abscess. "Scout films" should be made whenever possible; study of the gas shadows may prove of great importance in locating the obstruction, giving information as to the degree of proximal dilatation, indicating a perforation or aiding the surgeon in planning operative procedure. The leukocytes should be counted hourly; an ascending count, with frequent and thready pulse, means extension of inflammation and a bad prognosis. So, also, does a lowered count, when the leukocyte response had originally been brisk, particularly when accompanied by a drop in temperature and rise in pulse, but a fall in blood pressure. Peristalsis should be stopped by injections of morphine, preferably given intravenously when shock is present. Locally, if perforation or gangrene is suspected, attempts should be made early to localize the pathologic condition by the application of ice bags. If perforation has not taken place, large, hot dressings saturated with alcohol and boric acid should cover the abdomen.

As early as possible, studies of the blood chlorides, carbonates, calcium and nonprotein nitrogen should be made, particularly in the presence of constant regurgitation or vomiting. Falling of the alkaline radicals with increase of the nitrogenous bodies indicates a bad prognosis unless there is prompt and vigorous attempt made to counteract the phenomenon by continuous administration (preferably, intravenously) of solutions of sodium chloride and sodium bicarbonate or Ringer's solution. This procedure often is a life saving one, whether instituted before or after surgery or both.

And, finally, from the beginning, the internist should be in the closest cooperation with a skilled, conservative and scientifically trained surgeon.

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ACUTE INTESTINAL OBSTRUCTION *

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The most important single factor in the clinical consideration of acute intestinal obstruction is the element of time; a second one of great moment is offered by the site and character of the obstruction, whether high or low, the former pursuing a more rapidly fatal course than the latter. The precise significance of these two factors becomes apparent with a full realization of the sequence of events common to all types of acute intestinal obstruction; namely, mechanical obstruction of the intestine with stoppage of the fecal current, damage to the bowel wall with ultimate gangrene and peritonitis, and an associated production of toxins often of the most virulent type. The high mortality that has obtained and still obtains in the treatment of intestinal obstruction is a serious indictment of both diagnostic ability and surgical initiative.

A study of accumulated statistics reveals what is common knowledge, to wit, that, while acute intestinal obstruction carries an inevitable mortality, the greater portion of the mortality may justly be attributed to delay in recognition and to tardiness in the institution of appropriate surgical treatment. The research workers by their physicochemical studies of the body fluids have afforded much valuable aid in the appreciation of the changes in body chemistry with the indication of means to assist in the restoration of the latter, but the underlying fact, with which all adjuvants must be correlated, is that the obstruction is mechanical and must needs be corrected mechanically. The solution of the problem in the early hours following the advent of obstruction, when but simple obstructions are present, may require nothing further: the mortality is low and the results are

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brilliant if the obstruction is relieved before the wall of the bowel is compromised by pressure or strangulation, volvulus or thrombosis. With the incidence of the complications dependent on strangulation and toxemia, which invariably follow the continued presence of the obstruction, the relief of the obstruction becomes but one of the indications to be met and the risk of any operative procedure is enormously enhanced.

Since early detection is of such overwhelming importance, I cannot forbear stressing the points leading to a diagnosis, even at the risk of being tedious from reiteration of that which has already been presented. Unfortunately, an attitude of ultraconservatism in diagnosis, awaiting the onset of symptoms that prove the presence of obstruction but also indicate the approach of dissolution, has been, if not the accepted rule, then one quite commonly followed. It is an unpardonable mistake to spend invaluable time in making differential diagnoses when symptoms of an abdominal emergency are evident. The presence of abdominal pain, vomiting and constipation with an absence of fever and leukocytosis should put the burden of proof on the medical attendant to show that no obstruction exists. The history, particularly if previous abdominal ailments are indicated, the physical examination, the presence of active peristalsis, visible or audible, with the flat roentgenogram interpreted by a competent radiologist, in addition to the three cardinal symptoms mentioned, should permit of a working diagnosis before the accession of fever, leukocytosis, distention and paresis indicates changes brought about by strangulation, and chemical examination of the blood shows profound alterations. Morphine and purgatives, as characterized by Haggard, but compound the felony of delay. The former, with its relief from pain affording the patient a false sense of security, denies him the relative safety which early operation offers and lets him drift into the dangers of delay, while the latter merely increases the damage which an already active peristalsis inflicts.

The principles underlying the surgical treatment of acute intestinal obstruction may be discussed under three headings: the preparation of the patient, the operation, and the postoperative treatment.

PREPARATION OF PATIENT

The preparation of the patient will of necessity depend on the condition presented at the time of coming under observation, which in turn will depend on the location of the obstruction and the duration of its existence. If the duration of the obstruction has been short and the vomiting not excessive, the routine preparation for abdominal section will suffice with the added precaution of emptying the stomach and rectum, if perchance the latter has escaped the repeated enemas given as routine. When the vomiting has been excessive, which it usually is when the obstruction is situated high in the small bowel and when the duration of the obstruction has permitted the development of toxicity and dehydration, operation should not be undertaken until measures looking toward their correction have been instituted. The blood of such patients will show a decrease in the blood chlorides with a rise in its carbon dioxide combining power and a coincident rise in the nonprotein nitrogen and urea. The lost chlorides should be replaced with sodium chloride in solution, both subcutaneously and intravenously, from 1 to 2 per cent solution for the former, and from 3 to 5 per cent solution for the latter method of administration. In both instances it should be given slowly to prevent pain and, as well, damage to the tissues with which it comes in contact. Orr, with whose name much of the splendid blood research work in intestinal obstruction is connected, is of the opinion that the sodium chloride not only restores the normal balance in the blood but also acts as a definite therapeutic agent in overcoming the abnormal chemical changes found therein. Water should be given in abundance, subcutaneously and intravenously, to overcome the dehydration and, in those patients in whom starvation is evident, nourishment is to be added in the shape of dextrose. The technic of venoclysis as devised by Hendon, consisting of a special needle and fluid container, permits of a simple and satisfactory method for the continuous intravenous administration of fluids, water, saline solution, dextrose and citrated blood; the needle may be kept in the vein without change for as long as five days and the character of the fluid in course of administration may be changed at will. Blood transfusions in depleted patients are of definite help and may be given by this method with the least annoyance to the patient.

OPERATION

The cure of acute intestinal obstruction depends on the removal of the obstruction by surgical operation. The operation in simple obstruction may likewise be simple, while with strangulation and toxemia it can never be so classified. The three main objectives are: (*a*) the removal of highly toxic material from the intestine proximal to the obstruction; (*b*) the relief of the distention that is paralyzing the intestinal musculature, and (*c*) the restoration of the continuity of the intestinal lumen with the reestablishment of the fecal current. The external obstructions are both visible and readily accessible, their one feature presenting at times a difficult problem being the management of the damaged intestine. If a portion of the intestine is not viable, resection is imperative provided the condition of the patient will withstand this amount of operative trauma: if plainly prohibited or if the gravity of the patient's condition is such as to make the wisdom of resection a matter of doubt, the gangrenous bowel should be amputated and the divided ends anchored outside the abdomen—shotgun barrel enterostomy—to be closed later when local and general conditions have improved to the extent of making the operation reasonably safe.

With internal simple obstructions involving the small intestine, the complete operation may be and should be carried out. In cases of advanced obstruction of the small intestine which have not reached the stage of gangrene but in which the circulation of the proximal segment has been impaired by the distention due to the imprisoned gases and toxic fluids, a fertile field is offered for the display of surgical judgment and craftsmanship. The distended intestine makes intra-abdominal manipulation difficult and often renders the recognition of the pathologic anatomy perplexing, while the friability of the bowel wall due to distention with impairment of circulation both at and above the site of strangulation makes anything other than the gentlest handling a matter of great hazard. Evisceration as a routine in such cases is contrary to sound surgical practice, it being a maxim that the less manipulation the greater the percentage of recoveries. However, I have not hesitated to employ evisceration in those cases in which the visualization and accessibility of the site of obstruction made it necessary. After the obstruction has been released, the distended intestine is emptied of its septic and toxic contents before it is returned to the abdomen; thus the necessary drainage of the distended bowel is accomplished and at the same time its return to the abdominal cavity is facilitated. The enterostomy opening may be closed or utilized for a more prolonged drainage as the exigency of the case may require.

In the advanced cases presenting dehydration, starvation and toxicity, the institution of appropriate measures for their correction still leaves the surgeon in a quandary in making a choice between the liberation of the obstruction with drainage of the distended intestine and being content with the latter procedure alone. Many lives have been saved that would otherwise have been lost, by the performing of a jejunostomy or enterostomy near the site of obstruction under local anesthesia, the release of the obstruction being reserved for a later date when the absence of toxicity and a return of the bowel wall to its normal integrity make the necessary operative manipulation both safer and easier. It would seem that better drainage is obtained with the lower enterostomy and that it is more susceptible of spontaneous closure than jejunostomy. The stomach and duodenum can be effectively kept empty by an indwelling gastroduodenal tube. The employment of enterostomy alone is quite naturally reserved for the more desperate cases and offers no opportunity for determining the character of the obstruction or the condition of the intestine at the site of obstruction. Should the bowel be gangrenous, death from peritonitis is inevitable, since resection or amputation with the formation of a gun barrel enterostomy offers the only opportunity of averting such an issue.

When the site of the obstruction is in the large bowel, granting that the lesion is not one productive of gangrene such as volvulus or hernial strangulation, enterostomy is the primary treatment of choice. Obstructions in the colon are devoid of the acute toxic manifestations noted with those situated in the small bowel, although the sequence of stoppage of the fecal stream, strangulation, gangrene and peritonitis are much the same, if of slower progress. The disparity in size between the large and the small bowel makes for difficulty in anastomosis, while the edema and vascular changes in the colon proximal to the obstruction greatly hamper accurate suturing and correspondingly increase the danger of leakage. The latter impediments are in large measure removed by preliminary drainage, the secondary operation then becoming one of election. In the event of gangrene of the colon, resection, if within the limit of sound surgical judgment, should be practiced; otherwise sequestration of the gangrenous segment outside the abdomen with low ileac enterostomy as a primary procedure followed by restoration of bowel continuity at a later date. The selection of the anesthetic will depend on the character of the proposed operation. Jejunostomy, low enterostomy and cecostomy are readily and best accomplished under local anesthesia. Muscular relaxation is essential for careful and accurate intra-abdominal work, particularly in the presence of intestinal distention and fragility: gas-oxygen with sufficient ether to overcome muscle rigidity meets these requirements. As spinal anesthesia, by suppressing the inhibitory action of the spinal cord, permits excitatory action of the ganglions and promotes intestinal peristalsis, its use has been suggested in paretic ileus. In those cases in which an enterostomy has been done in the course of an advanced obstruction and in which the paresis from distention prevents drainage of more than the coil into which the enterostomy tube has been inserted, the injection of a spinal anesthetic or—what is safer and experimentally accomplishes the same result—blocking of the splanchnic nerves, may be of distinct benefit. It has also been suggested that spinal anesthesia will differentiate between mechanical and paralytic ileus; if, within fifteen minutes after the injection of the spinal anesthetic, passage of gas and feces and disappearance of distention is not obtained, enterostomy should be performed immediately; thus advantage may be taken of the anesthesia already produced.

POSTOPERATIVE TREATMENT

Vomiting is controlled by intermittent gastric lavage or by an indwelling gastroduodenal tube, the patient drinking water as desired, the unabsorbed portion of which returns through the tube without causing any discomfort. The body fluid and nutrition balance is maintained by subcutaneous and intravenous administration of saline solution and dextrose until such time as the resumption of normal peristalsis permits of oral administration. When an enterostomy has been performed it is essential to see that drainage occurs; this can be promoted by hot fomentations to the abdomen, saline irrigation of the intestinal lumen through the enterostomy tube and the cautious administration of solution of pituitary hypodermically. These failing, splanchnic blocking or spinal anesthesia should be tried. When no enterostomy has been done, colonic irrigation is employed in connection with the measures before mentioned to take care of the distention. It may be said in conclusion that while serologic research, choice of operative procedure and refinements in technic have contributed to a worth-while reduction in the mortality of acute intestinal obstruction, the greatest hindrance to its further reduction continues to be the delayed operation.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SMITHIES AND ABELL

DR. JAMES T. CASE, Chicago: What Dr. Abell said about the element of time is of the greatest importance, as we all recognize, lest we await the appearance of symptoms of an impending postmortem rather than symptoms of an early diagnosis of acute intestinal obstruction. I do not quite agree with Dr. Smithies when he says that barium should not be used; however, the so-called scout film should also always be used first, because from the appearance of the intestinal gas and its position in the abdomen one can gain a great deal of definite information. The fact of obstruction is the chief thing of interest. Is there, or is there not, acute intestinal obstruction? If there is, there is only one thing to do, and the sooner it is done, the better. In a case of ileus, the surgeon at the operating table expects to find the dilated intestines when he opens the peritoneum. It is perfectly possible to determine the presence of dilated intestines before operation, and that can be done by the flat film or scout film with no more trouble than is required to change a sheet or to use a bedpan. The patient is lifted by the drawsheet, an x-ray film holder slid under him, the x-ray portable apparatus brought to the bedside, and an exposure of one or two seconds made. The patient has been disturbed but slightly. The film can be developed to make a 14 by 17 inch map, and on that map one can measure intestinal coils filled with the gas which is naturally there in cases of ileus; it is easy to make a relatively accurate estimate of the diameter of the intestinal coils and to say whether the gas area represents the small or the large intestine. So, it is possible in the great majority of instances, without opening the abdomen, to determine the presence of dilated intestinal coils. If the characteristic herring-bone or feathery appearance of the shadow due to the small intestinal folds is not apparent, then I believe it is perfectly feasible to give a small quantity of barium in a dextrose-water mixture by mouth; it is surprising how soon that will visualize the small intestine so that it can be recognized by another film made four or five hours after the administration. Occasionally a little longer time is required. If the gas is in the colon, one is justified in making attempts to empty the colon by an enema. I never use the opaque material in a case of suspected obstruction of the small intestine until after I have made the scout film; generally there is no necessity of giving a regular meal, for a small quantity of barium sulphate will serve the purpose. Except when an intestinal anastomosis has been done, I do not fear to give a small amount of barium in a dextrose-water mixture.

Dr. Thomas G. Orr, Kansas City, Mo.: In discussing intestinal obstruction, I am conscious of the fact that a mechanical situation which requires surgery is being dealt with and that this is really the important feature, after all. Without surgery, one cannot hope to obtain a cure because of the true mechanical nature of the condition. Paralytic ileus is a different problem and can be relieved without surgical measures in some cases. In the consideration of intestinal obstruction, three events have taken place in the last few years which are quite significant. The first is the chemical study of the blood. There has been found a decrease in the chlorides, an increase in the nonprotein nitrogen, and in most cases of high intestinal obstruction an increase in the carbon dioxide combining power. I do not know what Dr. Smithies' experience has been when he mentions acidosis in connection with these cases. In my experience, if there has been any change, there was an alkalosis. Next in importance is the fact that the upper intestinal tract secretions are extremely important in maintaining life. It has been definitely proved that drainage of the stomach and the duodenum and jejunum will produce death in a few days in experimental animals; therefore, there is something in the upper intestinal juices essential for life. The third joint is an explosion of the old idea that drainage of the so-called toxic materials proximal to the obstruction into the bowel below the obstruction will kill the patient. I do not believe there is anything to that at all; in fact, I think the contrary has been proved, that it would be nice if one could have all of these fluids drained into the normal bowel below to maintain life. This belief is substantiated by the work of Raine and Perry, and White and Fender, and by Wilkie. When doing an enterostomy, it is doubtful whether the chief factor is a drainage of the toxic material from the bowel, but rather a relief of distention in the bowel. In order to obtain results from operation or any treatment, one must get these patients before peristalsis has been abolished. If an enterostomy is done and the bowel is paralyzed, there will be no results. If there is no peristalsis, there is no work, and nothing is accomplished either by the removal of an obstruction or by the doing of an enterostomy. I agree with Dr. Case that enterostomy is indicated in some cases.

Dr. Roy D. McClure, Detroit: Twenty-three years ago I read a paper on the experimental production of intestinal obstruction. At the end of the symposium the consensus was for earlier diagnosis and earlier operation. Today the conclusions to be drawn from the papers of Dr. Smithies and Dr. Abell are much the same as the conclusions drawn twenty-three years ago. Some advances have been made. One of the greatest is in the use of sodium chloride, as advocated by Dr. Haden and Dr. Orr. Their work on sodium chloride has been outstanding. I agree with Dr. Smithies—a patient whom one suspects of having intestinal obstruction should be worked up to the limit as far as present knowledge is concerned as to the chemical condition of the blood, and perhaps roentgenograms should be taken. This can usually be done quickly and I agree with Dr. Abell that there should be no unnecessary delays. I believe that the medical man and the surgeon should both see and follow through with the patient suspected of having intestinal obstruction until the patient is at least over the crisis of obstruction. Dr. Abell mentions the type of anesthesia to be used. I have been using spinal anesthesia with increasing frequency. Where any considerable manipulation of the viscera is necessary there is less postoperative distention than I formerly had with general anesthesia. Postoperative distentions sometimes went on to a paralytic ileus, because the bowel was so paralyzed by the preparation given. In the service I had in a New York hospital a little over twenty years ago, a preparation for any major operation was used which was extremely damaging to the intestinal function. The patient was given 2 grains (0.13 Gm.) of mild mercurous chloride, half a grain every half hour for four doses with 10 grains (0.6 Gm.) of sodium bicarbonate followed in the morning by magnesium sulphate. After his bowels moved he had an enema. During the night he had a soap enema and in the morning a sodium chloride enema. Postoperative distention was the rule. Today, without preoperative cathartics, postoperative distention is almost nil compared with what it was then. So, paralytic ileus is less frequent. Prophylaxis against intestinal obstruction is as possible as in some of the other diseases. Polyps, benign or malignant, carcinoma, ulcers and constricting adhesions can be diagnosed and treated early before obstruction develops.

Dr. Walter A. Bastedo, New York: I wish to emphasize two points. In the recent past I have had two cases of obstruction from femoral hernia, both in elderly women, one of them 83. In each case at least five days had elapsed since the first pain came on. In the 83-year-old woman, it had been seven days since the first pain came on, and five days since the last feces had been passed. There was evidently obstruction, and as the patients were so old, I supposed that they might have carcinoma. Both were fat and tremendously distended and it was difficult to recognize anything. Their abdomens were tender everywhere, but on palpating in the routine way in one patient I found a little femoral hernia on the right side. There was a delay of twenty-four hours in operation because others would not agree, and the patient died. In the 83-year-old patient the hernia was on the left side. I was not sure of it but there was great tenderness at the femoral region, and I thought a hernia probable. The surgeon in that case thought it was the more usual splenic flexure carcinoma and made the cut high up, but after going in high up he found he had to make a second cut, which he might have avoided if he had realized or thought with me that perhaps there was a femoral hernia. The patient made a complete recovery. The other point I want to speak about is this: If the physician fools around with these patients a little overlong and then calls a surgeon, he can hardly expect him to agree with him at once, on seeing the patient for only fifteen minutes and talking with him. The surgeon should be brought in early so that he can see the patient two or three times. Over and over again, I am sorry to say, with the most eminent surgeons, I have had a delay of twelve or twenty-four hours because at the first visit it was impossible for me to convince the surgeon of the diagnosis.

Dr. Owen H. Wangensteen, Minneapolis: Forty-one years ago when the treatment of intestinal obstruction was discussed at the German Congress of Internists convened at Wiesbaden, Fürbringer stated that the mortality of medical treatment of acute bowel obstruction was 66 per cent—a mortality no higher than with surgical treatment. A year previously, the same topic was the subject of a symposium in which Reginald Fitz and Nicholas Senn presented the medical and surgical aspects, respectively. A mortality of 70 per cent for both types of treatment was reported. It was agreed that, after two days of medical conservative procrastination, patients with acute bowel obstruction should have the benefit of what little surgery had to offer. Today, although it is universally acknowledged that patients should be operated on as soon as the diagnosis is made, the general mortality is almost as high as it was forty years ago. What is most needed is a better understanding of the early criteria on which a diagnosis can be made. It is significant that simple bowel obstruction is the only abdominal disaster that presents early no local physical conditions suggestive of the presence of a serious intra-abdominal lesion. Strangulation obstructions, because of the infarction of the bowel, of course produce abdominal tenderness and rigidity. In a patient, complaining of intermittent crampy abdominal pain followed by nausea and vomiting, who exhibits no local physical conditions, simple bowel obstruction should be suspected. A physical sign of great importance in the diagnosis, not mentioned by either of the authors, is auscultation of the abdomen. It is my experience that peristalsis is usually visualized only in subacute or chronic obstructions; but loud intestinal borborygmi may be heard with the stethoscope, and, if dilated coils are present, sounds of metallic character are often made out, a finding almost pathognomonic of bowel obstruction. If a single plate is made of the abdomen and gas is seen in the small intestine, the diagnosis of acute bowel obstruction is established. Gas is normally present throughout the intestinal canal, but in adults it is visualized normally only in the stomach and colon; the intermixture of gas and fluid is so intimate in the small intestine that gas is not visualized on the roentgenogram. Gas in the small intestine is therefore synonymous with intestinal stasis.

SIGMOIDOSCOPY VERSUS X-RAYS IN THE DIAGNOSIS OF TERMINAL BOWEL DISEASE *

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During the period of thirty-five years since Professor Roentgen discovered the x-rays and Howard Kelly introduced standard rectoscopes, refinements in the technic of roentgenology and improvements in proctoscopes have made these two agents prime factors in the diagnosis of gastro-intestinal diseases. Each method has its indications, advantages and limitations, and frequently the two are mutually helpful in reaching a correct diagnosis.

The roentgen ray has a wide range of applicability and has proved its value in the diagnosis of gastro-intestinal lesions, notably in the movable portions of the tract, as the stomach and colon; in demonstrating position, contour, function, points of stasis and defects indicating pathologic changes. In the relatively fixed rectum and distal sigmoid colon, however, which are situated largely within the bony pelvic girdle, the x-rays are of comparatively limited value. Prominent defects are that:

(*a*) An important lesion may be missed entirely.

(*b*) Although the site and apparent extent of a lesion are discovered, especially if it is of a stenosing character, its nature is frequently not disclosed.

(*c*) In many cases, interpretation of the image is so uncertain as to cast grave doubt on the diagnosis.

The x-rays are now so generally available that all too frequently when the patient presents symptoms referable to the distal bowel the physician at once refers him for a gastro-intestinal series. This is unfair to both the patient and the roentgenologist. It deprives the latter of invaluable data and frequently imposes on the patient loss of time and the expense of a prolonged indirect search for what can be directly felt or seen. Moreover, the nature of an accessible lesion frequently remains in doubt and serious conditions at their onset are easily misinterpreted. For example, amebic colitis in its early stages or before secondary infection of the ulcers has occurred may present the same symptoms and roentgen appearance as ulcerative colitis but, viewed through the proctoscope, the early lesions are characteristic and pathognomonic. A smear from a typical ulcer, examined at once on the warm stage of a microscope, reveals motile amebas and clinches the diagnosis.

On the other hand, a negative roentgen report, as for example in the case of a small tumor, instils a false sense of security. Meanwhile the lesion that was missed develops apace and the most favorable time for its treatment is lost. This is evidently due to the fact that an insufficient number of men are being trained to do a competent proctosigmoidoscopy and to interpret the observations. To correct this deficiency every hospital and diagnostic group should have associated with it a trained and competent proctologist.

Without in the least disparaging the diagnostic merit of the x-rays, my purpose is to stress that in examination of the terminal bowel the usual order of procedure should be reversed, sigmoidoscopy being first in order. Endoscopy usually establishes the diagnosis of lesions in the rectum and the pelvic colon. When the observations are negative or if the pathologic condition found seems inadequate to explain the symptoms, a roentgen study should always follow the endoscopy. Even negative endoscopic observations are valuable data for the roentgenologist.

The important reason for emphasizing early endoscopy is that the vast majority of pathologic lesions of the large bowel are limited to or involve the rectum or pelvic colon; namely, practically all cases of simple colitis; the specific infections—amebic, bacillary and gonorrheal; 90 per cent of organic strictures; 70 per cent of nonmalignant tumors, and 75 per cent of large bowel carcinomas.

The x-rays comprise the best available agent for determining the extent of involvement in ulcerative colitis and in detecting tuberculosis of the cecum; it is our chief reliance in demonstrating diverticulosis of the colon and especially diverticulitis of the sigmoid, and rarely it may discover a double primary carcinoma in different colonic segments.

Digital examination should always precede rectoscopy. Nothing else is so conclusive as palpation for organic lesions of the lower 8 to 10 cm. of the rectum and it is the only means of detecting lymph node recurrence of carcinoma beneath an intact mucosa.

A satisfactory proctosigmoidoscopy implies introduction of the tube into the pelvic colon, which can be accomplished in more than 70 per cent of cases. The normal anatomic limit of advancement is the apex of the sigmoid loop, which varies from 10 to 14 inches from the anus. Standard textbooks on proctology give the correct technic of sigmoidoscopy but, naturally, as in esophagoscopy or cystoscopy, experience is essential for correct interpretation of the pathologic changes revealed. Requisite to obtain the full benefit of bowel endoscopy are calibrated tubes of various lengths and diameters, electrically lighted and fitted with an eyepiece for air inflation when needed.

In stenosing lesions, such as strictures or neoplasms, the tube of one-half inch diameter can usually be passed without difficulty through the lumen to the uninvolved area above, thus determining at once their limits. If painful lesions of the anal canal with sphincteric spasm are present, the tube of small diameter is imperative for successful examination unless the parts are first anesthetized by a topical application or by local infiltration.

The dangers of injury or perforation of the bowel wall can always be avoided if the tube, after passing the anal canal, is advanced, as it should be, under guidance of the eye in the axis of the bowel lumen, aided by atmospheric pressure and, when necessary, by light puffs of the pneumatic bulb.

Important data obtainable by proctosigmoidoscopy are:

1. Reaction of the bowel contents.
2. Condition of the mucosa; atrophic or hypertrophic catarrh.
3. Infections; amebic, bacillary, hemorrhagic, gonococcal, and chronic ulcerative colitis (nonspecific).

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4. Ulcers; tuberculous, syphilitic and the large solitary (callous) ulcer.
5. Stricture; fibrous or inflammatory.
6. Nonmalignant growths; number, situation, distribution and character.
7. Malignant tumors, most commonly adenocarcinoma, and their extent of involvement.
8. Invagination of the pelvic colon into the rectum (third degree prolapse of the rectum).
9. The nature of a rectosigmoidal constriction, whether inflammatory or malignant, and whether intrinsic or extrinsic.
10. Discovery of amebas, when present, from material collected on sterile swabs and examined immediately. This material is available for smears and cultures from which autogenous vaccines may be made.

If doubt exists as to the precise nature of an ulcer, stricture or neoplasm, *biopsy* should be done forthwith and the site of removal treated with 95 per cent phenol followed by alcohol. The data thus obtained are of prime importance in the diagnosis, prognosis and rational treatment.

The following cases are cited briefly for illustration. The roentgen studies and reports were made by thoroughly competent roentgenologists.

REPORT OF CASES

Case 1.—W. M., a man, aged 44, during the three weeks previous to examination had dull pain in the lower part of the abdomen and occasionally had some fresh blood in the stools, which occurred once daily. A series of roentgenograms that had been made during the injection of barium showed a spotted appearance of the barium in the lower part of the sigmoid; there was suggestive evidence of polypi of the lower part of the sigmoid. Abdominal palpation showed a tender sigmoid loop; sigmoidoscopy to a depth of 13 inches disclosed no polypi or ulcers but a congested, beefy mucosa (colitis), which cleared up promptly under treatment. The spotted appearance was evidently due to the irritability of the involved segment.

Case 2.—G. H., a man, aged 65, was admitted to the hospital with the diagnosis of intestinal obstruction. At about the middle of the sigmoid or just above its junction with the rectal ampulla was a long jagged defect. Differential diagnosis between carcinoma and abscess could not be made. The observations indicated a definite organic lesion. The rest of the colon filled poorly with barium. Sigmoidoscopy showed at 7 inches above the anus a pedunculated tumor the size of an almond, which was removed with the electric snare and proved on histologic examination to be an adenoma.

Case 3.—H. D., a man, aged 66, during the four months previous to examination averaged six stools daily, with some fresh blood at intervals. In the roentgenograms made after evacuation of the barium enema, two polypi, one on the right and one on the left side, at the junction of the sigmoid and rectum, were shown fairly distinctly. These were not shown at all when this part of the colon was completely filled with barium. Digital palpation and proctoscopy showed two polypoid growths just above the anal ring on the anterior rectal wall, the base of the larger being 3 cm. long by 1 cm. broad. The rectum above this point and the pelvic colon were normal.

Case 4.—A physician, aged 73, always in good health but constipated, had a sudden intestinal hemorrhage two days before examination. Sigmoidoscopy at this time disclosed at a depth of 8 inches an early ulcerated neoplasm, biopsy of which showed adenocarcinoma. Roentgenographic and fluoroscopic study of the gastro-intestinal tract revealed multiple diverticula of the sigmoid, and incomplete stricture at the lower end of the sigmoid, the involved area being about 4 cm. in length, a portion of involved sigmoid wall at this place retaining power of contraction. These changes were those exhibited in a scirrhous type of new growth. The roentgenograms demonstrated the diverticula. This case illustrates in a striking manner the diagnostic value in certain instances of roentgenograms combined with sigmoidoscopy.

CONCLUSIONS

1. Sigmoidoscopy is indicated and should be performed in every case presenting intestinal symptoms.
2. Sigmoidoscopy usually gives more accurate and precise data in diseases of the rectum and pelvic colon.
3. Obtainable data frequently establish a correct diagnosis promptly, which is an economy for the patient and gives valuable information to the roentgenologist.
4. Endoscopy should precede the roentgen study.
5. Every general hospital and diagnostic group should include a competent proctologist on its staff.

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ABSTRACT OF DISCUSSION

Dr. John L. Jelks, Memphis, Tenn.: Two weeks ago I saw a case of fecal passage from the bladder. Proctosigmoidoscopy effectively excluded the rectum and sigmoid as the site of the perforation. Definite pathologic changes and characteristic mucopus of amebiasis were seen, which directed laboratory examinations and proved the correctness of the clinical diagnosis. These examinations and the diagnosis would have been embarrassed by either a barium or a bismuth enema, both of which are parasitocidal and should never be used prior to proctosigmoidoscopy and microscopic examinations when there is an ulceration that might be parasitic. Later, a roentgen study was made and cystotomy was ordered, and at this time it was easy to palpate a cancer mass which involved the colon above instrumentation. Often small adenomas and ulcers are found which x-rays cannot reveal. The appearance of the intestinal mucosa is often a factor which x-rays cannot reveal. A careful observer of pathologic changes of the throat needs no less the x-rays in streptococcic or tuberculous or Vincent's infections of the throat and buccal mucosa than does one who observes the same pathologic changes in the intestine. These statements should in no wise minimize the importance of roentgen examinations, which should come in proper sequence. There are conditions in the colon and sigmoid which seem to be remote from an actual pathologic condition in the intestine at that point. I refer particularly to those conditions which are observed especially in the South, where pellagra and flagellosis are so prevalent; when there is not so marked a pathologic condition except in cases of mixed infections, x-rays would show a marked spasticity. No clinical assembly of physicians should be without a competent man to make proctosigmoidoscopic examinations, a competent pathologist, a competent bacteriologist and a competent protozoologist. There are less than a hundred men in this country who can properly diagnose by laboratory study the different protozoa in this country or can even classify the known pathogenic amebas.

Dr. Louis J. Hirschman, Detroit: I don't like the word "versus," in the title of this paper. There is no conflict or controversy between different diagnostic methods. They should go hand in hand. I agree with Dr. Yeomans that the sequence of diagnosis has been reversed. I, too, have seen patients with something wrong with the colonic or rectal function and yet the gastro-intestinal roentgenograms did not seem to show it. The proctologist made the diagnosis immediately. Why does one make a complicated roentgenologic study of anything that is in the range of one's eyesight or in the reach of one's examining fingers? Many pathologic entities in the lower bowel can be seen with the proctoscope and felt with the finger. Fluoroscopy should also be used. I don't believe in films alone. This is one time when a fluoroscope should be employed. Fluoroscopy enables one to see the changes in position and the different variations in physiologic or pathologic motion, with the roentgenologist who, after all, is a consultant. One should not be satisfied with positive conditions in the lower bowel, but after one has seen as far as one can see, and felt as far as one can feel, x-rays, barium enemas and manipulation should be used to make sure that there is nothing else higher up that will go undiscovered. I have had the experience of seeing a large polyp through the sigmoidoscope, but after following up with the x-rays I found, besides, a carcinoma of the median colon.

I have a case of carcinoma of the rectum and another of the sigmoid with an area of 4 inches of healthy bowel between. The sigmoidoscope alone should not be relied on. The time may come when there may be a floating camera that the patient can swallow, and under radio control, television will come into effect, and it can be stopped when one wishes as it goes on its peristaltic journey, by touching a button, and then have it pass out. Until that time comes, the x-rays will have to be depended on for examining parts of the alimentary canal that one cannot see.

Dr. Curtice Rosser, Dallas, Texas: Unquestionably, so far as proctologic opinion is concerned, the proper order of procedure is as described: *proctoscopy followed by roentgenoscopy* of the colon and, if no evidence of obstruction is found, by a gastro-intestinal series. As a matter of fact, this gives one, in addition to the favorable situation mentioned by Dr. Yeomans, a field clear of barium in the rectum for proctoscopy and a colonic picture unobscured by barium in the small bowel. There is a tendency in medical gatherings to discuss in detail exact methods of diagnostic procedures, overlooking the concrete fact with which we as proctologists and gastro-enterologists continue to be faced, that our real problem continues to lie not in determining how to make examinations but in our inability to obtain a patient to diagnose during earlier stages when treatment of any kind is efficacious. The bismuth and paregoric regimen continues to hold the diarrheic individual for three, to four, to six months before he gets to a gastro-enterologist. Bleeding cancers come from twelve to sixteen months after symptoms develop and the mortality has been more greatly increased by this fact than by any reversal of the proper order of examination.

Dr. Frank Smithies, Chicago: I presume it is occasionally necessary to have a perfectly obvious paper like this to check us on what we think we are doing right or what we think we are doing wrong. I always understood that the proper scheme of procedure was the examination of the fresh stool, the proctoscopic study and the gastro-intestinal series. I haven't heard many of the proctologists speak of the examination, and the frequent examination, of the freshly passed stool. They have relied largely on looking 30 cm. up and then "cussing out" the roentgenologist and the internist because they did not see anything; also they have had the idea that the internist had interfered with their own examination. I can't see how anybody could detect anything from x-rays like the ones that have been presented, even the x-ray man himself. If one is to do a roentgen examination, he must do it properly, with a progress meal; fluoroscopy, enema plate and the like. So far as proctoscopy is concerned, that, too, must be done properly. Dr. Jelks has said that there are not more than a hundred men in the country who can classify parasites. I could say there are not a hundred men in this country who can do a proctoscopic examination. Many times I see polyps, carcinomas and ulcers that have been missed, because a patient during proctoscopy is placed *on the right or left side, or put in a knee-chest position* on a table so high that all one can get is a glimpse of the internal sphincter. If proctoscopy is to be done, it must be done right, on a proper, special table, with proper air inflation, and with the patient in a position so that something may be seen if it is there. I had a proctologist recommend the removal of a section of bowel on account of a tumor. There was a tumor, but it was secondary to a mesothelioma of the left kidney. A proctologist should be an internist first and he should be perfectly familiar with his own line of examination, which all too frequently he is not. He should also realize that what he sees is not the whole story. Dr. Hirschman hinted at that. The proctologist should remember, particularly with regard to protozoic infestation, that when he gets, from a bit of mucus, active protozoa such as *Endameba,* the lesion is far advanced and he is not diagnosing an early protozoic infestation of the alimentary tract.

Dr. Max Einhorn, New York: I fully agree that no method of examination of the rectum should be omitted in making a diagnosis, and the simpler the examination, the better. If a mass can be felt with the finger in the rectum, a diagnosis can easily be made. The proctoscope can be used in addition, but there are conditions in which a diagnosis is impossible or difficult, even if every aid to diagnosis is used.

Dr. Descum C. McKenney, Buffalo: I wish to emphasize the importance of a position for sigmoidoscopic examination such as one gets with a Buie or Hanes table. The patient must be stood on his head, practically speaking. Another thing, in making all rectal examinations, the man who does it properly not only studies the lower end of the bowel but also takes into consideration the troubles farther up. Recently I saw two men, aged 36 and 71, respectively. Both had hemorrhoids so large that they acted as rubber rings to sit on and explained their bleeding. In the younger man I found a carcinoma at the upper end of the rectum. In the older man I found a tumor, an adenoma the size of a hen's egg, probably benign, at the lower end of the pelvic colon; unfortunately, I didn't get a chance to remove it or study it further, because he died of a stroke later. Both of these were easily diagnosed with the sigmoidoscope, whereas the x-rays would probably have missed them. There are a few things in making a sigmoidoscopic examination that are quite valuable. The length of the tube does not determine the field for examination, because if one studies the type of secretion that comes down from above the end of the instrument, one will get some valuable hints as to what may be going on higher up. A rectal tube or a catheter attached to a bulb or other suction apparatus can be put through the sigmoidoscope *when it reaches its highest point, and with it one can often* collect secretions that are valuable for examination. To overcome one difficulty in the passage of the sigmoidoscope, the physician can often, with the instrument in place, leave the patient in position while he answers the telephone or sees another patient, and when he comes back the spasm will have been relieved and the sigmoidoscope will usually pass on easily another two or three inches. Another thing that sometimes helps me to pass the instrument farther is the use of saturated solution of magnesium sulphate on a swab. I think that Dr. Beach of Pittsburgh told about that for the first time.

Dr. Anthony Bassler, New York: As I get the point of Dr. Yeomans' paper, he wants to present the value of the sigmoidoscopic examination. It is an interesting thing that for many years the proctologists have been pounding on that one idea, and yet there seems to be a gap in the universal use of the sigmoidoscopic for which there is really no excuse on the part of any one, however limited his practice may be. Physicians ought to make their examinations complete, and there is no doubt that the use of this instrument is valuable in clinical work. A criticism that I have of the proctologist is that the use of the instrument is always centered around pathologic changes of carcinoma, adenoma and hemorrhoids, and things of the sort that have somewhat of a surgical interest. I want to step down into their domain for a minute and say this: The use of the proctoscope from a gastro-enterologic standpoint has a most valuable application. Familiarity with the appearance of the mucosa can commonly suggest parasitic infections; appearance of ulcers commonly suggests types of biologic infections, and one has a means of seeing an ulcerated colitis by eye. Chronic infections of the intestine have *commonly a certain* characteristic appearing mucous membrane. There is the typical atrophic mucous membrane and the hypertrophic forms which are secondary to certain classic types of intestinal toxemias. I am not speaking on surgical matters of proctology but on clinical matters of gastro-enterology, and I would substantiate the proctologist's effort and try to popularize the use of this instrument as a clinician and not as a proctologist or surgeon. Nobody should miss the valuable clinical opportunities that come in the use of this endoscopic instrument in even straight medical gastro-enterology.

Dr. Frank C. Yeomans, New York: This paper is not on the technic of sigmoidoscopy. The title was selected to draw attention to the subject rather than to cause a discussion of the relative merits of proctoscopic and roentgen examinations. The two are complementary and essential in many instances. Every physician understands the importance of the stool examination. Reports of routine examination are frequently received "negative for ova and parasites" or "occult blood," which mean nothing, and I found it necessary to get the material fresh from the mucosa, either on the eye of the rectal tube or by scraping, which is much better, in cases of dysentery. This is not a paper for the specialist. Its purpose is to focus attention on a glaring defect in general practice. The great majority of general practitioners do not own x-ray machines or proctoscopes and they are not familiar with their use. Too often and quite as a routine the physician sends his patient to the roentgenologist without his having a proctoscopic or digital examination. I have many consultations in hospitals and frequently am told that a proctoscopy has been done, usually by the junior intern, who notes that he thinks the mucous membrane is inflamed or swollen in some spot. The bowel may not have been properly emptied. One cannot blame the intern for not knowing what a normal bowel looks like. He never saw one in medical school and has forgotten most of the living pathologic condition of the That is the point I am emphasizing. It is a practical point for bowel. That happens in the metropolis and I am sure it happens, only to a greater degree, in the rural parts of the United States. the welfare of the patient and for the credit of the profession.

TREATMENT OF INTERMITTENT CLAUDICATION WITH HYPERPYREXIA PRODUCED BY BATHS *

H. G. MEHRTENS, M.D.
AND
P. S. POUPPIRT, M.D.
SAN FRANCISCO

In the routine treatment of 500 neuropsychiatric patients with hyperpyrexia produced by baths, it became apparent that certain types of pain were especially amenable to such therapy. In this favorable group were cases with vascular lesions and vasoneuroses. The symptoms complained of ranged from the more trivial discomforts on vigorous exercise to crippling incapacity on any exertion. In the early and less typical cases a definite classification was doubtful. In severe cases the diagnosis was obvious, but all cases could be included under the symptom complex of intermittent claudication.

Intermittent claudication is a term now rarely considered as descriptive of a clinical entity. It should be restricted to a combination of symptoms observable in a number of pathologic conditions. While such a symptom complex may result from many forms of arterial lesions, two varieties, arteriosclerosis and endarteritis obliterans, will include far the larger proportion of cases. Hunt[1] has emphasized that the two chief factors, angiosclerosis and angioneurosis, are usually combined. The distribution of the lesions allows of a most varied clinical picture, including spinal, cerebral, mesenteric, retinal and lumbar types.

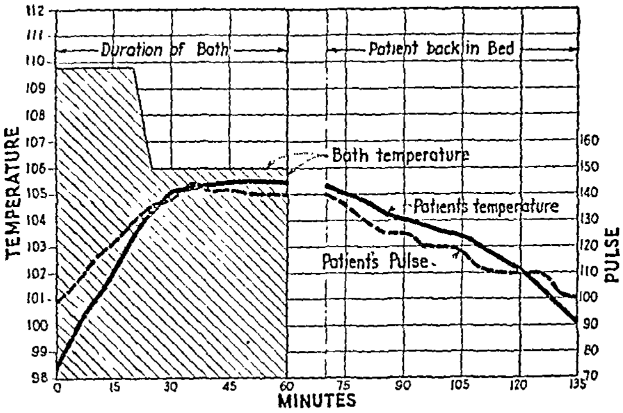

Chart 1.—*Hyperpyrexia produced by baths.*

In the past many methods have been employed in the treatment of intermittent claudication, including immersion of the extremities in hot water, use of diathermy locally, protein shock,[2] intravenous injections of hypertonic sodium chloride,[3] and two surgical methods—that of stripping the peripheral vessels[4] and that of removing the sympathetic ganglions.[5] Intravenous sodium chloride solution has been reported as symptomatically helpful. Protein shock is temporarily of benefit and indicates the results that may be anticipated from surgery. The surgical methods, particularly ganglionectomy, apparently give the most satisfactory results when applied in carefully selected cases.

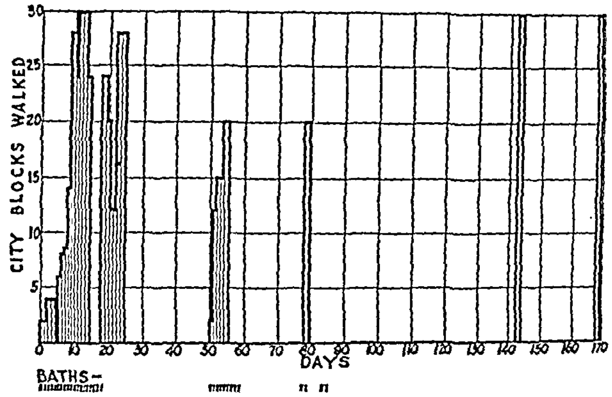

Chart 2.—*Effect of baths on ability to walk, in a case of arteriosclerosis.*

TECHNIC OF THE BATH

An ordinary bathtub and bath thermometer may be used, although the continuous tub admits of a more satisfactory control of fever. An ordinary mouth thermometer will suffice at lower temperatures, but a rectal thermocouple is very helpful at high temperatures or for noncooperative patients. For this type of patient a mouth temperature of from 103 to 105 F. is sufficient.

Our technic consisted in immersing the patient in a bath at 110 F. With timid patients, or on the occasion of the first bath, the temperature can be started at 105 F. Ordinarily 110 F. was maintained until the temperature of the patient reached a point within 1½ degrees of the fever desired. Then the temperature of the water was reduced until it corresponded with the mouth temperature of the patient. The routine bath lasts one hour, but when indicated it is feasible to maintain the patient's temperature by wrapping him in blankets. A daily bath repeated fourteen times is indicated for most patients, although twice this number were given consecutively with no added difficulty (chart 1).

CLINICAL RESULTS

In the great majority of the less severe cases, symptoms were ameliorated by a series of fourteen baths. In more than 30 per cent no recurrence took place during the period of observation. In the severe cases the results were varied. When gangrene had set in, no improvement was obtained even when the fever was produced without wetting the gangrenous tissues. In six cases in which gangrene had not appeared but symptoms were severe, every patient received symptomatic relief lasting from one week to a year. Every patient gained weight during the course of baths, although the immediate loss of weight following a bath ranged from 3 to 5 pounds.

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* Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Hunt, J R.: Intermittent Claudication and Allied Syndromes Due to Angiosclerosis of the Extremities, M. Rec. **67**: 801 (May 22) 1905.

[2] Allen, Smithwick: Use of Foreign Protein in the Treatment of Peripheral A. **91**: 1161 (Oct. 20) 1928.

[3] Silber Obliterans, J. A. M. A. **94**: 1730 (May 31) 1930.

[4] Lewis, Dean; Reichert, F. L.: Collateral Circulation in Thrombo-Angiitis Obliterans, J. A. M. A. **87**: 302-304 (July 31) 1926.

[5] Brown, J. E., and Adson, A. W.: Thoracic and Lumbar Sympathetic Ganglionectomy in Peripheral Vascular Diseases: Therapeutic Value, J. A. M. A. **94**: 205 (Jan. 25) 1930.

Following is the report of a case of arteriosclerosis:

A Jewish Hungarian carpenter, aged 54, entered the hospital complaining of pain in the calves of both legs produced by walking half a block which disappeared with rest. This condition had been present for eight months and was increasing in intensity in spite of numerous courses of diathermy. Examination showed a residual hemiplegia, sclerotic radial arteries, feet pale and cold with absent dorsalis pedis and posterior tibial pulsations of both sides. Roentgenograms showed calcification of arteries of the legs. The diagnosis was arteriosclerosis.

The patient was given a series of hyperpyrexia baths with resulting improvement beginning after the second bath and gradually increasing, as shown in chart 2, until, after eighteen daily baths, he was able to walk thirty city blocks without discomfort. Twenty-five days after dismissal he reentered because of a return of slight pain in the legs on walking two blocks. He was given six daily baths, following which he was able to walk twenty blocks. Twenty-five days later he returned for one prophylactic bath. At that time he could walk twenty blocks without pain. He has been under observation for a year, has had no relapses, no further treatment has been given, and he is now walking from 3 to 5 miles without pain. In spite of the good clinical results, no actual change could be demonstrated in the vessels.

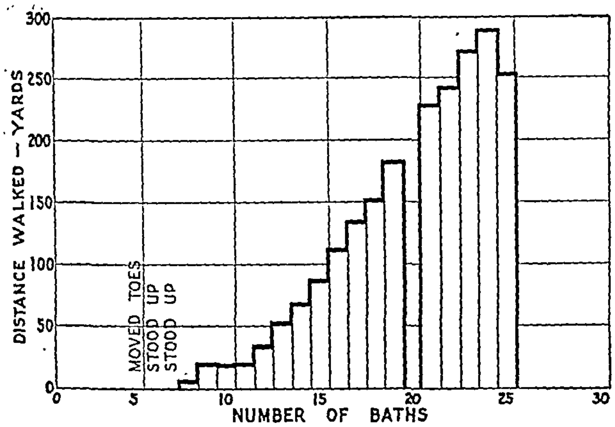

Chart 3.—Effect of baths on ability to walk, in a case of endarteritis obliterans.

Chart 3 represents the progress made by a patient with endarteritis obliterans who showed symptoms of intermittent claudication. The improvement in this case did not begin until the seventh day and was of no consequence until the eleventh day, following which a steady gain was made until the patient could walk 250 yards without pain.

It is interesting to speculate as to how the hyperpyrexia does its work. George Brown[6] concludes that the collateral circulation in thrombo-angiitis obliterans is in a spastic state from which it is released by foreign protein reaction. The fever resulting from the baths may act in a similar manner. There remains the possibility that hyperpyrexia acts centrally on the vasodilator center, accounting for a more prolonged increase in circulation than an hour's fever with its resultant peripheral dilatation would explain.

COMPLICATIONS OF HYPERPYREXIAL BATH THERAPY

In a series of 5,000 treatments of patients varying in age from 16 to 87, including ones with myocarditis, hypertension and severe degrees of marasmus, no fatalities occurred. Complications were avoided by individualizing the treatment and by constant supervision of the patients.

INDICATIONS

Hyperpyrexia baths, because of their safety and simplicity of administration, have a field of usefulness in early cases of vascular disease with symptoms of intermittent claudication. Even in the more severe cases this therapy may find a place because sympathetic ganglionectomy, as well as the use of intravenous hypertonic saline solution, is recommended chiefly in selected cases of Buerger's disease. Arteriosclerosis with calcification is infrequently benefited by the foregoing procedures, but hyperpyrexia has in our experience proved worthy of trial.

CONCLUSIONS

1. Hyperpyrexia produced by baths is a useful therapeutic measure in the symptom complex of intermittent claudication.
2. The milder cases offer the better chances of improvement.
3. Cases in which gangrene has already taken place show no amelioration.
4. Arteriosclerosis with calcification in the peripheral vessels presents a favorable field for this therapy.

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Clinical Notes, Suggestions and New Instruments

SHALL SYRINGOMYELIA BE ADDED TO THE LESIONS APPROPRIATE FOR SURGICAL INTERVENTION?

Charles H. Frazier, M.D., Sc.D., Philadelphia

By a recent experience my attention has been called to benefits that may be derived in syringomyelia from surgical intervention. Looking over the literature I was surprised to find no references of American authorship to resort to operation for this condition. As a matter of fact, the first recorded operation for syringomyelia is contained in an article by Puussepp,[1] who related his operative experience in two cases. Only four other pertinent articles have appeared since Puussepp's original contribution; one by the same author,[2] one by Förster,[3] one by Schmieden,[4] and one by Oppel.[5] I shall not review these articles in detail. *Suffice it to say that Puussepp has operated on four patients* with manifest improvement; Schmieden on one patient with definite improvement in movement of arm and leg and of sensation; Oppel performed seven operations on six patients with results varying from negative to brilliant. Up to the present time, therefore, including my own there are only twelve cases on record of the surgical treatment of syringomyelia.

REPORT OF CASE

History.—R. S., a woman, aged 35, referred to the Neurosurgical Service of the University Hospital by Dr. Walter Timme, noticed a sense of tingling in the entire left upper extremity, fifteen years before, immediately after sneezing, which continued for a month, and following this there developed weakness in the left forearm and left ankle. Associated with this was pain in the left ankle and left thigh. The weakness in the left upper and lower extremities gradually increased and eleven years ago (1919) weakness in the right arm was noticed. Ten years ago (1920) there was a gradual weakness and loss of motion in the right upper extremity and four months later sensation in the right upper and lower extremity was almost completely lost. During the past years she developed clonic spasm of the right shoulder and muscles of the throat and quite recently incontinence.

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[6] Brown, G. E., and Adson, A. W.: Physiologic Effects of Thoracic and Lumbar Sympathetic Ganglionectomy or Section of the Trunk, Arch. Neurol. & Psychiat. **22:** 322 (Aug.) 1929.

[1] Puussepp, L.: Rev. neurol. **33:** 1171 (June) 1926.

[2] Puussepp, L.: Arch. franco-belges de chir. **30:** 293 (April) 1927.

[3] Foerster, O.: Zentralbl. f. Chir. **56:** 891 (April 6) 1929.

[4] Schmieden, V.: Zentralbl. f. Chir. **56:** 2114 (Aug. 24) 1929.

[5] Oppel, W. A.: Arch. f. klin. Chir. **155:** 416, 1929.

Examination.—There was no voluntary movement of the left upper extremity. In the left lower extremity voluntary motion was greatly impaired and sufficient only to make a few steps possible with help. There was restricted movement of the right elbow joint, and the fingers of the right hand were rigidly flexed. The movements of the right lower extremity were only slightly impaired. The sensory changes were profound. Sensation of all forms was lost in the back of the head, trunk, both upper extremities and the right lower extremity. In the left lower extremity sensation for touch, pain and temperature was partially preserved. In the face, tactile sensation was acute on both sides but there was impairment of temperature and pain sensation—a condition typical of syringomyelia.

There was bilateral atrophy and fibrillary tremor of the tongue.

There was a coarse nystagmus on looking to the right, rotary on looking to the left, lateral on looking upward and downward.

The patellar and Achilles tendon reflexes were increased on the right and diminished on the left. There was abortive ankle clonus and Babinski reflex.

By the manometric test there was no evidence of a spinal block.

April 14, 1930, laminectomy was performed under colonic ether anesthesia. The laminae and spinous processes of the seventh cervical and first thoracic ribs were removed. The spinal canal at this level seemed abnormally wide. When the dura was incised, an abundance of cerebrospinal fluid could be seen in the subarachnoid space.

The cord was pulsating and was affected by respiration. As I was observing the cord and before the incision was made the cord collapsed. How the fluid escaped I could not determine.

In deciding on a point at which to make the incision in the cord, I selected an avascular space just to the right of the median line. The wall of the cyst at this level was but from 2 to 4 mm. thick. After the incision was made, a thin strip of the finest gutta percha tissue was inserted into the cyst to insure permanent drainage.

After securing hemostasis the dural incision was closed with a continuous silk suture and the muscles with interrupted silk sutures.

The immediate convalescence was unusually free from discomforts. The wound healed by first intention and the patient was discharged, April 28, two weeks after the operation.

As to the immediate effects, the incontinence was immediately relieved. The spasticity of the fingers of the left hand had subsided so that passive movement was possible, a condition not possible before the operation. The patient could extend the fingers of the right hand. This she could not do before. The head was held erect and not tilted to one side. Especially did the patient feel a sense of relaxation, and the sense of tension had in large measure subsided.

Sensation for touch and temperature was restored in the zone supplied by the second and third cervical nerves and in the trigeminal distribution; sensation for pain and temperature was completely restored on the right side of the forehead and only slightly impaired elsewhere.

The improvement that followed was definite; that it was not more striking must be attributed to the duration and extent of the lesion. The cessation of incontinence more than justified the undertaking. Not only had the patient's condition improved in these various particulars but the improvement in her morale, of itself, was sufficient, it seemed to me, to justify the operation.

On the results obtained in the series of cases reported, no one should question the propriety of surgical intervention. As a matter of fact, the underlying principle—the relief of pressure—is the same as that on which many operations on the brain and spinal cord are based. In my case, for instance, the development of urinary incontinence was a manifestation of pressure. Perhaps it is too early to predict the end-results. Oppel thinks it is at least reasonable to assume that the incisional openings into the cyst will not close, but to insure permanent drainage I inserted a narrow strip of thin gutta percha tissue into the cavity and I learned later that Oppel had used a strip of dura for the same purpose. Space does not permit a discussion of the technic in detail. Suffice it to say that in most instances the lower segments of the cervical cord should be exposed and an incision made of sufficient length to establish drainage and prevent reaccumulation of fluid in the cavity. The only question in dispute is the site of the incision. Poussepp advises an incision from 2 to 4 mm. long to one or the other side of the median line, the right or the left side being chosen according to whether the symptoms are more advanced on one side or on the other.

Altogether, this initial experience with the surgery of syringomyelia was more than pleasing and from my own experience and that of others I should not hesitate in advising intervention, and at as early a stage of the disease as possible.

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PELLAGRA-LIKE SKIN LESIONS APPEARING IN THE COURSE OF A KETOGENIC DIET *

Riley H. Guthrie, M.D., Palmer, Mass.

The case here reported illustrates a relatively new complication—a dietary deficiency syndrome—due to poorly supervised ketogenic diet.

B. R., a woman, aged 20, single, the only child of living and healthy parents, was reared in comfortable circumstances. Her early development was uneventful except for whooping cough at 1½ years, and measles at 8 years. There was nothing relevant in the family history. Nocturnal convulsions were first observed at 14. Various methods of treatment were tried in her case. At 16 she was given glandular therapy in the form of whole gland pituitary substance and thyroid extract because her basal metabolic rate was — 24 per cent and she was slightly overweight. At that time she presented some vaguely described neurologic signs; i. e., some cranial nerve involvement and positive Babinski reflex on the left. About this time her tonsils were removed. The convulsions gradually became more frequent, both nocturnal and diurnal. After physical therapy and electrotherapy failed she was placed on phenobarbital. She did not respond well to phenobarbital therapy, and the dosage was increased to 4 grains (0.26 Gm.) a day. In January, 1930, at the age of 19, she was placed on a ketogenic diet with a very low protein, relatively liberal carbohydrate and high fat content. This diet was carried out in her home without proper medical supervision. For a time convulsions decreased in number but finally returned with such frequency that phenobarbital was again increased to 4½ grains (2.9 Gm.) daily. She had been refractory to all forms of treatment. After seven months of this ketogenic diet she developed an erythema on the dorsal surfaces of her hands and wrists, and about her neck. One observation was made in the outpatient clinic of the Monson State Hospital, Aug. 21, 1930. Her mother stated that the ketogenic diet had been discontinued three weeks previously because the patient was growing worse and mental deterioration was progressing. The erythema referred to previously had become less marked after her dietary restrictions had been removed.

A dusky desquamation of glovelike distribution was present over the dorsum of her hands and wrists. A similarly pigmented desquamation was about her neck, of collar-like distribution. There was a tawny pigmentation over the dorsal aspects of both feet and external malleoli. The following neurologic summary was made by Dr. Paul I. Yakovlev: The patient was fairly well nourished. She was inactive, sluggish and indifferent. Her comprehension was impaired and she answered questions slowly, carelessly and in monosyllables. Her speech was slurring, her body attitude atonic and her movements hesitating. Her station was unsteady. Her arms hung flaccidly, and her gait was slouchy. There was nystagmus on lateral gaze. Diadokokinesis was clumsy and slow, and there was marked hypermetria in heel-to-knee tests on both sides. The patellar reflexes were equal and pendulous (atonic). The tonic postural reflexes were weak or abolished. The plantar reflexes were normal. The abdominal reflexes could not be elicited. Ophthalmoscopic examination was negative.

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* From the Monson State Hospital.

COMMENT

The neurologic signs—generalized muscular atony, clumsy diadokokinesis, absent abdominal reflexes, nystagmus and positive Romberg—might be accounted for by the prolonged use of large doses of phenobarbital. The prolonged sedation and resultant vegetative existence of this patient might easily influence her nutritional status and, therefore, play a part in the causation of her pellagra-like skin symptoms. However, the history of a very low protein diet led up to the appearance of this well known protein deficiency syndrome, and the skin symptoms began to subside as soon as dietary restrictions were removed.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1930, p. 352).

Medical Arts Laboratory, Inc., Oklahoma City, Okla.

Antirabic Vaccine, Semple Method.—An antirabic vaccine prepared according to the general method of David Semple (phenol killed). It consists of a sterile suspension, in distilled water, of the brain and cord substance of rabbits moribund from the injection of fixed virus rabies. The virus is killed by the use of phenol and by incubation at 37 C. for forty-eight hours. The finished product contains 0.5 per cent of phenol. Marketed in packages of fourteen vials, each containing 2 cc.; in packages of fourteen vials each containing 2 cc. and a syringe; in packages of fourteen syringes, each containing 2 cc. All of the doses are of the same potency; one dose is to be given daily over a period of fourteen days. In severe cases, two doses are given daily for several days.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1930, p. 364).

E. R. Squibb & Sons, New York.

Diphtheria Toxoid-Squibb (see New and Nonofficial Remedies, 1930, p. 366).—Also marketed in packages of twenty 1 cc. ampules of diphtheria toxoid and two 1 cc. ampules of diluted diphtheria toxoid for the reaction test.

NORMAL HORSE SERUM (See New and Nonofficial Remedies, 1930, p. 340).

E. R. Squibb & Sons, New York.

Normal Horse Serum (see New and Nonofficial Remedies, 1930, p. 341). —Also marketed in packages of one 50 cc. vial.

SODIUM GOLD THIOSULPHATE.—Sodii et Aurii Thiosulphas.—Gold Sodium Thiosulphate.—Sodium Aurothiosulphate, $Na_3Au(S_2O_3)_2.2H_2O$. The complex salt formed from 1 molecule of gold thiosulphate and 3 molecules of sodium thiosulphate. It contains approximately 37.4 per cent of gold.

Actions and Uses.—A review of the literature in regard to the use of gold and sodium thiosulphate in the treatment of lupus erythematosus reveals in general quite satisfactory clinical results, and it is considered a distinct advance in the therapy of this condition. Although there have been many recurrences in cases originally thought cured, nevertheless the beneficial and often curative action of the drug in a good percentage of the cases seems to warrant giving it a definite place in the treatment of a disease for which at present there is no specific remedy.

Gold and sodium thiosulphate must, however, be used with extreme caution. Dosages at first advocated have been found to be too great, resulting frequently in severe reactions, sometimes resulting fatally. Even with much smaller doses, accidents of this kind have occurred. The reactions most commonly encountered are varying degrees of fever, diarrhea, vomiting, albuminuria, enteritis, stomatitis, prostration and shock. Skin reactions consist of varying degrees of erythema, urticaria, severe papular and vesicular dermatitis, and scarlatiniform and exfoliative dermatitis. Published necropsy reports reveal conditions usually found in metal poisoning.

Dosage.—At present the initial dose preferred is from 0.01 to 0.025 Gm. (⅙ to ⅜ grain) intravenously given in from 2 to 5 cc. of sterile distilled water. Subsequent doses given at weekly intervals are increased 0.01 Gm. (⅓ grain) per dose, not exceeding a maximum of 0.075 Gm. (1⅙ grains) for women and 0.1 Gm. (1½ grains) for men, provided no reactions have occurred. The drug may be continued cautiously in smaller dosage following complete recovery from mild reactions but should be discontinued permanently if severe reactions have occurred. A careful physical examination to rule out disease of the liver and kidneys, or other serious organic disorders, should be made before using this therapy. Cases of lupus erythematosus of the disseminated type are most likely to show an extreme idiosyncrasy for the drug, and if used at all in such cases it must be given in very small doses not exceeding 0.005 Gm. at the start and cautiously increased to a maximum of probably not over 0.025 Gm.

Sodium gold thiosulphate occurs in white, glistening, needle-like or prismatic crystals. The aqueous solution is colorless. It is freely soluble in water; very slightly soluble in alcohol, ether and chloroform. An aqueous solution (1: 200) is neutral or faintly alkaline to litmus.

Sodium gold thiosulphate decomposes without melting when heated gently, leaving a brown residue on ignition. An aqueous solution (1: 200) assumes a yellow color on standing and decomposes.

Dissolve 0.1 Gm. of sodium gold thiosulphate in 20 cc. of water: separate portions of 2 cc. each yield a brick red precipitate with 0.4 cc. of silver nitrate solution; a purple red color followed by a gray brown precipitate on addition of 0.2 cc. of ammonia water and 0.5 cc. of solution of hydrogen peroxide, followed by heating to boiling point (*distinction from arsenic, antimony and tin*); no precipitate with 0.3 cc. of sodium iodide (15 per cent); a bluish purple (purplish gold) precipitate preceded by disappearance of the iodine color with 0.3 cc. of iodine test solution (*presence of* $S_2O_3^{--}$); no precipitate in the cold, on addition of 0.5 cc. of concentrated hydrochloric acid, but on heating to boiling a precipitate then forms; a precipitate with 0.5 cc. nitric acid; no precipitate on addition of 0.2 cc. barium chloride solution and 0.2 cc. diluted hydrochloric acid (*sulphate*); no apparent change in cold or after heating with 0.4 cc. of sodium bisulphite solution (*no auric compounds*).

Dissolve about 0.5 Gm. of sodium gold thiosulphate, accurately weighed, in 5 cc. water, carefully add 4-5 cc. nitric acid and 25 cc. water; agitate; when the reaction has subsided, filter the residue on to a tared Gooch crucible. Wash the residue with six 25 cc. portions of water and save the filtrate for determination of sulphur constituent. Wash the residue in crucible with alcohol and ether after removal of the filtrate; dry the contents at 100 C. and ignite to constant weight. The weight of gold should not be less than 37.0 per cent nor more than 37.5 per cent.

Transfer the filtrate from the gold precipitation to a 250 cc. volumetric flask and make up to volume by addition of water. Pipet 50 cc. of the solution to a 500 cc. beaker, add 5 cc. hydrochloric acid, evaporate to one-third volume, dilute to 250 cc., heat almost to boiling temperature, slowly add with stirring 10 cc. of hot barium chloride solution, digest, filter through tared Gooch crucible, dry and ignite the residue to constant weight. The weight of barium sulphate corresponds to not less than 24.2 per cent nor more than 24.7 per cent of sulphur.

Gold Sodium Thiosulphate-Abbott.—A brand of sodium gold thiosulphate-N. N. R.

Manufactured by the Abbott Laboratories, North Chicago, Ill. No U. S. patent or trademark.

Ampules Gold Sodium Thiosulphate-Abbott, 0.05 Gm.
Ampules Gold Sodium Thiosulphate-Abbott, 0.1 Gm.
Ampules Gold Sodium Thiosulphate-Abbott, 0.25 Gm.
Ampules Gold Sodium Thiosulphate-Abbott, 0.5 Gm.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1930, p. 356).

The National Drug Co., Philadelphia.

Diphtheria Toxin-Antitoxin Mixture (Diphtheria Prophylactic) (See New and Nonofficial Remedies, 1930, p. 357).—Also marketed in packages of one hundred and fifty 1 cc. vials, fifty immunizations.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1930, p. 364.

The National Drug Co., Philadelphia.

Diphtheria Toxoid (See New and Nonofficial Remedies, 1930, p. 365).—Also marketed in packages of five immunization treatments, consisting of fifteen vials, each containing one human dose; in packages of fifty immunization treatments, consisting of 150 vials, each containing one human dose. For the two dose method of treatment the following forms are marketed: in packages of one immunization treatment, consisting of two vials, each containing one human dose; in packages of five immunization treatments, consisting of ten vials, each containing one human dose; in packages of ten immunization treatments, consisting of one vial containing twenty human doses; in packages of fifteen immunization treatments, consisting of one vial containing thirty human doses; in packages of fifteen immunization treatments, consisting of thirty vials, each containing one human dose; in packages of fifty immunization treatments, consisting of one hundred vials, each containing one human dose.

POLLEN ALLERGEN SOLUTIONS-SQUIBB (See New and Nonofficial Remedies, 1930, p. 27).

The following pollen allergen solutions-Squibb are marketed in treatment set packages of three 3 cc. vials, the first containing 0.0005 mg. of nitrogen per cubic centimeter, the second containing 0.008 mg. of nitrogen per cubic centimeter, and the third containing 0.05 mg. of nitrogen per cubic centimeter.

Ragweed Combined Pollen Allergen Solution-Squibb; Timothy Pollen Allergen Solution-Squibb.

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SATURDAY, DECEMBER 20, 1930

DUES FOR 1931

Among the pages of The Journal this week will be found a colored slip of irregular shape. This slip serves a double purpose. It is a reminder or statement for 1931 Fellowship and subscription dues which are now payable. When properly folded the slip is also a perfect envelop which needs no addressing or postage. The check, draft or money order may simply be enclosed in this envelop, dropped in the mail, and the matter of 1931 dues is disposed of in about one minute's time. It is earnestly urged that every Fellow and subscriber act promptly on this reminder. The colored slip also lists the various special journals published by the Association, as well as *Hygeia*. This is an added convenience, as all subscriptions may thus be covered with one remittance. Full directions for folding the envelop appear on advertising page 12.

SERUM PROTEIN AND EDEMA

There can no longer be any doubt of the close interrelationship between the occurrence of an abnormally low content of protein in the blood serum and the possible development of edema. The latter phenomenon may become manifest under a variety of pathologic conditions, notably when certain types of cardiovascular disorders arise and they are attended with renal disorder. The studies of recent years have demonstrated, however, that generalized edema may occur in the absence of detectable primary disease in the cardiovascular and renal systems. An illustration is afforded by the so-called malnutritional edema. This was prevalent during and just after the World War in central Europe, where people were forced to subsist largely on turnips and other root vegetables for long periods. Schittenhelm and Schlecht[1] studied the condition in prison camps and decided that rest and increased protein and fat in the diet relieved the edema. They estimated serum proteins by refractometer methods and found that refractometric indexes were low in 50 per cent of the cases. Finally, the disease was attributed to a lack of protein and possibly of fat in the diet. The symptoms were not those of a lack of vitamins.

Edematous conditions have been produced experimentally in animals by prolonged feeding of diets poor in protein.[2] Leiter[3] lowered the serum proteins by plasmapheresis. He bled animals, centrifugated off the plasma, mixed the cells with physiologic solution of sodium chloride, and replaced them in the animals. By this means the serum proteins were lowered and an edema developed. Others have succeeded similarly.

The relationship between serum proteins and the occurrence of edema in man has lately been stressed with especial reference to the therapeutic management of the condition by increments of protein in the dietary intake. In a series of patients at the Yale School of Medicine, Peters and his co-workers,[4] for example, observed that edema usually is present when the serum proteins are below 4 per cent, and never when they exceed 5 per cent. This condition obtains in so-called nephrosis. A case carefully investigated by Cowie and his collaborators[5] at the University of Michigan substantiates anew that there is a definite relationship between the serum protein and edema in childhood. Edema and ascites could be induced at will by feeding an amount of protein inadequate for the patient's nutritional needs, and likewise edema and ascites could be caused to disappear by feeding an adequate amount of protein. The amount of protein necessary to overcome and prevent edema was the amount that would bring the patient into a positive nitrogen balance of from 1 to 3.7 Gm. and the blood proteins up to 5 Gm. per hundred cubic centimeters. A continuous nitrogen balance of from + 2 to + 5 Gm. was incompatible with edema. The feeding of protein in this amount was unattended by an increase in the nitrogen content of the circulating blood or the retained fluids of the body. The retained nitrogen must therefore have been stored in some of the tissues. To secure the positive balances, an intake of 2.6 Gm. of protein per kilogram of body weight (1.2 Gm. per pound) was requisite. This is considerably more than Parsons[6] has recently found requisite for maintenance of a positive nitrogen balance in healthy children of the preschool group; i. e., from 4 to 8 years of age. Thus the protein factor in nutrition must be reckoned with in a way quite unlike that formerly considered universally desirable when albuminuria occurs.

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[1] Schittenhelm, A., and Schlecht, H.: Berl. klin. Wchnschr. **58:** 1138, 1918.

[2] The literature of the subject has been reviewed by Frisch, R. A.; Mendel, L. B., and Peters, J. P.: The Production of Edema and Serum Protein Deficiency in White Rats by Low Protein Diets, J. Biol. Chem. **84:** 167 (Oct.) 1929.

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[4] Peters, J. P.; Wakeman, A. M.; Eisenman, A. J., and Lee, C.: Pathogenesis of Nephritic Edema, Yale J. Biol. & Med. **1:** 35 (Oct.) 1928.

[5] Cowie, D. M.; Jarvis, Katharine M., and Cooperstock, Moses: Metabolism Studies in Nephrosis, Am. J. Dis. Child. **40:** 465 (Sept.) 1930.

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DIET AND DENTAL CARIES

The conviction that defective teeth frequently act as foci of infection has served to stimulate further increasing interest in the care of the teeth, and attention is being centered with renewed vigor on the etiology of caries. The disease has long been known; paleopathologic studies of ancient Egyptian skulls bear evidence to its prevalence among the earliest races.[1] Dental caries is far more common among the more highly civilized races than among peoples living under less favorable or, at least, simpler conditions. However, there is no evidence for believing that caries is an endemic disease or that it is contagious. That general health has a bearing on the appearance of caries is shown by the fact that this disorder frequently is observed after periods of sickness and especially during pregnancy. In view of the many attempts to account for development of dental caries on the basis of either experimental or clinical conditions, the present state of our knowledge of the etiology of this disease is not gratifying.

The anatomic situation of the teeth renders an adequate study of dental pathology extremely difficult. Composed in large part of inorganic material, protected with hard enamel, the teeth are apparently chemically inert. Yet it is asserted that caries consists essentially of localized areas of solution of the mineral salts of the tooth. Furthermore, the fact that the teeth are in a moist, nonsterile chamber, subjected to wide ranges of temperature, to atmospheric gases and to contact with various food materials, renders experimental control in vivo a remote possibility. Little wonder, therefore, that caries has been variously attributed to such widely different agents as bacterial activity, the reaction and altered composition of the saliva, the influence of the secretions of the endocrine glands, and to faulty diet.

It is generally accepted that age is a factor in the susceptibility to dental caries, the incidence being highest between the ages of 7 and 20. For this reason it would appear to be particularly important to secure data on the factors influencing the appearance of this disorder in the young, with a view to developing effective prophylactic measures. This is the thesis on which are based recent extensive studies of Bunting, Hadley, Jay and Hard.[2] In a preliminary survey it had been observed that the prevalence of caries was much less among children given diets that would be generally regarded as adequate. In the main investigation the relative influence of antiseptic mouth washes, diet and a combination of these was studied. Five groups of children consisting of from 74 to 159 individuals were examined both before and after approximately a year had elapsed during which time the experimental measures were in effect. Four of the groups lived in state-supported institutions and so might be expected to have been under more or less satisfactory control.

The first two groups were provided with a satisfactory diet from which sugar was eliminated, except as it was used to make the food palatable. In this diet milk, green vegetables and fruit were prominent. In addition to this favorable diet, an antiseptic mouth wash was used daily. At the end of the period of observation, caries was active in 5 per cent and 6 per cent respectively of the children, while 80 per cent and 79 per cent respectively were free from the disorder. In the third group, attending a public school, mouth antisepsis was practiced, but control of the diet was not attempted. After nine months, 50 per cent showed active caries and only 25 per cent were free. The fourth group consisted of children in a state public school and was provided with an "unusually good" though not ideal diet. Here the mouth wash was omitted, and after a year, 75 per cent were normal while only 6 per cent showed active caries. In the fifth group, in which the ration was not carefully balanced, neither dietary change nor preventive treatment was carried out. Eighteen per cent of these children were free from lesions, while 49 per cent showed active caries.

In spite of the fact that studies of large groups of human beings inevitably suffer the drawbacks of noncooperation and lack of suitable controls, the investigation of Bunting and his co-workers is impressive. In the three groups in which milk, fruits and green vegetables were prominent in an otherwise well balanced diet, the progress of caries was either greatly diminished or prevented entirely, and this result was obtained whether antiseptic mouth washes were used or not. It was also pointed out that these children were in excellent general health at the termination of the investigation. In those groups consuming diets not entirely satisfactory according to modern nutritional standards, the disorder was active and its rapid course was not arrested. Among these children, likewise, the use of oral antisepsis exerted little influence.

While the observations here discussed have demonstrated little that is new concerning the immediate cause of dental caries, they do emphasize again the importance of diet in the control or prevention of the disease. At first glance the beneficial effect of the better rations might be attributed to a metabolic change, in which case one is confronted with the difficulty of explaining a situation in which an apparently inert and inactive structure such as the enamel is so altered chemically that it is rendered in a comparatively short time either more resistant or more susceptible to the effects of substances in the mouth. The other point of view emphasizes the mechanical action of foods such as greens and raw fruits which have been demonstrated to be of value in the prophylaxis and prevention of caries. Regardless of the point of view from which the beneficial effect of adequate diet is considered, it is satisfactory to know that this prevalent disease of childhood and youth can be largely controlled by a procedure at once physiologic and highly beneficial for many other reasons.

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[1] Marshall, J. A.: Etiology of Dental Caries, Physiol. Rev. 4:564 (Oct.) 1924.

[2] Bunting, R. W.; Hadley, Faith P.; Jay, Philip; and Hard, Dorothy G.: The Problem of Dental Caries, Am. J. Dis. Child. 40:536 (Sept.) 1930.

THE EFFECTS OF CONTINUED ADMINISTRATION OF IODIDE

Recently several experimental studies, carried out in different parts of the world, have indicated possible general benefits or detriments from administering iodide during long periods. The advent of iodide medication of whole populations, as with iodized table salt, iodized drinking water and iodized confections, has given special interest to these observations. So far as detrimental effects are concerned, there appears to be no doubt from these experimental studies that harmful effects in healthy animals receiving continued small doses have not been demonstrated. However, as to possible benefits, opinions and conclusions are not unanimous.

Favorable results indicating moderate though variable increases in body weight and growth of a great majority of white rats receiving iodized food continually during the major part of their lives have been mentioned previously in these columns.[1] The feeding of other salts to companion rats under the same conditions failed to exert similar benefits. These results with iodide agreed and correlated with a number of other beneficial effects on other functions in different animals observed in different parts of the world. For instance, growth of body weight of pigs, of sucklings of iodized mothers, and of rats on iodized milk was increased, the milk secretion of cows on iodized feed was improved in quality and quantity, iodized rats grew more rapidly, with more rapid sexual development, and iodized yeast showed more growth.

Now, however, two reports have appeared in this country which appear to deny the beneficial effects of iodide on growth and body weight. From the results of a limited study, Mendel and Vickery,[2] who used four groups of white rats, of which two groups were fed the usual complete artificial diet containing a trace of iodide and two groups were given 1.107 mg. of potassium iodide on yeast tablets daily with the same diet, venture the following opinion: "The variations between the records of individual animals are not inconsiderable, but the graphs that represent the averaged rates of gain for the respective groups are, we think, too nearly alike to permit claims of superiority for either type of diet." However, the curves published by the Connecticut investigators show that during several months there were greater increases in body weight of the rats receiving more iodide than among the controls on traces of the drug. These increases in body weight occur in about the same way and appear to be of about the same order of magnitude, namely, 8 or 10 per cent, as those reported by previous investigators. Assuming a benefit of this kind and degree to be correct and to hold good for man, it requires no stretch of the imagination to see that medication with iodide, practiced in various ways by physicians and the public the world over, with potentialities for good, may have an objective basis. Additional and more conclusive data are nevertheless desirable.

In another type of experiment, which ostensibly was designed to give the alleged beneficial effects of iodide an infallible test, Mitchell and his collaborators[3] of the Illinois Agricultural Experiment Station report negative results and deny the validity of most previous data. These investigators fed iodide to growing pigs, pouring the iodide on the morning feed in quantities equivalent to 1 grain (0.065 Gm.) of iodine daily; and to growing chickens, which received from 0.5 to 1 mg. daily per hundred grams of body weight. The Illinois investigators object to the group type of experiment, such as a group of three or five animals, frequently employed by previous workers. In their own experiments they used smaller groups, two pigs or three chickens, and practiced a peculiar selection of animals, so that each animal of a pair or triplet, one of which was the unmedicated control, was required to ingest the same amount of food daily. If an animal of a group did not eat the same amount, the food of the bigger eater was withheld. What this deliberate form of food restriction and equalization may mean for physiologic functions is not indicated, although it is assumed to be unobjectionable. In any case the conditions are not comparable with those of previous investigators who have employed the method of free choice in feeding, suitably controlled. Although the conclusions of the Illinois experimenters are unfavorable to the beneficial effects of iodide on growth and body weight in pigs and chickens, and on the assimilation of nitrogen, phosphorus and calcium in growing pigs, it seems that their conclusions can hold only for the special experimental conditions they imposed. The results might be, and in fact have been, different under other conditions. While it is possible that under other conditions the benefits of iodide might be due to effects on appetite, absorption, food consumption, or what not, this still leaves them within the scope of physiology.

Mathematical treatment of data alone does not necessarily make them physiologically accurate. Lest it be too readily assumed that all effects of iodide are mediated through the thyroid gland, a perusal of pharmacologic literature will indicate that iodide exerts many actions for which there is no reason to assume thyroid mediation, and yet the general metabolism may be affected. Thus it would appear that the reaction of body weight and growth of animals to continued administration of iodide in small doses is different under different experimental conditions. Additional animal experimentation to settle the question of beneficial effects of iodide appears desirable, for here clinical experimentation offers only impressions.

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[2] Mendel, L. B., and Vickery, H. B.: Proc. Soc. Exper. Biol. & Med. **27**: 806 (May) 1930.

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Current Comment

ACUTE PERITONITIS

The peritoneum, it has been said, is one of the most common sites of inflammation, not because it is especially susceptible to infection but because it is so often subject to attack. Although uninfected agents, such as blood, bile and urine, may cause peritoneal inflammation, bacteria or their toxins are the predominant etiologic factors concerned. The opinions as to the final cause of death in acute diffuse peritonitis have not been uniform. As intestinal paralysis, with obstruction of the bowel, is a common symptom, it has been regarded as a determining factor in fatal cases. Part of the difficulty in establishing the truth has also been due to the lack of suitable experimental analogues. Attempts to produce experimental peritonitis by the intraperitoneal introduction of bacteria into laboratory animals have not been entirely satisfactory. A presumptive explanation of some of the failures has been offered by Steinberg and Goldblatt.[1] Following the intraperitoneal injection of *B. coli* suspended in physiologic solution of sodium chloride, a large number of these organisms were found in the lymph (thoracic duct) and a relatively smaller number in the blood. Rapid passage of bacteria from the peritoneal cavity into the blood was associated with the recovery of the animal; hence bacteremia is not responsible for the death of dogs in acute *B. coli* peritonitis. However, when large numbers of virulent colon bacilli suspended in tragacanth are injected intraperitoneally the animals always die, and the outcome is not altered by direct drainage of the thoracic duct. Steinberg and Goldblatt formulated the hypothesis that the intraperitoneal retention of bacteria suspended in tragacanth favors the production of toxic substances, the absorption of which causes the death of the animal. When bacteria suspended in saline solution are injected intraperitoneally, the production of toxin in an appreciable quantity is prevented by the rapid passage of the bacteria into the blood stream, where they are destroyed. Further implication of bacterial toxins as the primary factor in producing death has been supplied by Steinberg.[2] A fatal peritonitis can readily be produced by the introduction of diphtheria bacilli in suspensions of tragacanth in saline solution. It can be prevented by the administration of antitoxin. The local inflammatory reaction per se apparently has no effect on the survival or death of the animal. This constitutes added evidence that death in acute diffuse peritonitis may, under some conditions at least, be due to passage of a bacterial toxin from the peritoneal cavity. Effective antitoxic treatment thus becomes a real desideratum.

SUGAR CONSUMPTION AND DIABETES

In discussions of the etiology of diabetes, it is usually admitted that the ultimate cause of the disease is not known. Obesity is at present regarded as the most important predisposing influence; and chronic dietary excesses usually precede obesity. Writers have from time to time identified dietary errors with ingestion of undue amounts of carbohydrate; and sugar in particular has been brought under suspicion. It happens, in fact, that the consumption of sugar has increased notably in many parts of the world while there has been an increase in the incidence and mortality of diabetes. This broad parallelism has led persons to assume a relationship of cause and effect between the dietary use of sugar and the occurrence of diabetes. Critical investigators have often pointed out the unconvincing nature of this sort of logic; and they have further noted statistical discrepancies that seem to invalidate the hypothesis of etiologic relationship. Joslin,[1] for example, has noted that diabetes is not conspicuous among cereal-eating orientals; that diabetes was quite as prevalent in Germany as in the United States at a period when our sugar consumption was much larger; and that England, with a much smaller sugar quota, has only slightly less diabetes. Joslin therefore ventures the conclusion that it is the excess of food rather than of carbohydrate that does the harm. Mills,[2] of the department of internal medicine at the University of Cincinnati College of Medicine, has recently made detailed comparisons of sugar per capita for five years (1923-1928), together with the death rate from diabetes for the most recent year obtainable, and the deaths expressed from diabetes as a percentage of the total deaths. These statistics fail to show any direct relationship between consumption of sugar and deaths from diabetes. Some countries with a high consumption of sugar, as Hawaii, Argentina and Cuba, have a relatively low death rate from diabetes, while some of the countries with a high death rate from diabetes, such as the Netherlands and the Union of South Africa, come fairly well down in the column of sugar consumption. It is to be noted, Mills adds, that, of the thirteen countries highest in consumption of sugar, eleven are found among the thirteen highest in death rate from diabetes. There are many discrepancies, however, indicating a lack of constant relationship between the consumption of sugar and the death rate from diabetes. In some that have shown a gradual but steady increase in the consumption of sugar for many years, there has occurred a recent decline in deaths from diabetes. Instead of unwarranted condemnation of a common food of the present day, it is probably more just to render the temporary verdict "not proven."

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[1] Steinberg, Bernhard; and Goldblatt, Harry: Studies on Peritonitis: I. Production of Experimental Peritonitis and Survival Following Intraperitoneal Injection of Bacillus Coli, Arch. Int. Med. **39**: 446 (March) 1927; II. Passage of Bacteria from the Peritoneal Cavity into Lymph and Blood, ibid., p. 449.

[2] Steinberg, Bernhard: The Cause of Death in Experimental Acute Diffuse Peritonitis, Proc. Soc. Exper. Biol. & Med. **28**: 59 (Oct.) 1930.

[1] Joslin, E. P.: Treatment of Diabetes Mellitus, Philadelphia, Lea and Febiger, 1929.

[2] Mills, C. A.: Diabetes Mellitus: Sugar Consumption in Its Etiology, Arch. Int. Med. **46**: 582 (Oct.) 1930.

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE AND HOSPITALS

Preliminary Program of Meetings to Be Held in Chicago, Feb. 16, 17 and 18, 1931

The next Congress on Medical Education, Licensure and Hospitals will be held in the Palmer House, Chicago, February 16, 17 and 18. The preliminary program is as follows:

CARE OF THE MENTALLY ILL IN THE UNITED STATES

(Monday Morning, February 16)
W. M. English, M.D., Presiding
President of the American Psychiatric Association, Brockville, Ont.

Mental Health as a National Problem
Hon. Ray Lyman Wilbur, M.D., Secretary of the Interior, and Chairman, Council on Medical Education and Hospitals, American Medical Association, Washington, D. C.

Federal Activities in the Care of the Mentally Ill
Walter L. Treadway, M.D., Assistant Surgeon General, Division of Mental Hygiene, U. S. P. H. S., Washington, D. C.

State Institutions and Their Relation to Medicine in General
Samuel W. Hamilton, M.D., Bloomingdale Hospital, White Plains, N. Y.

MENTAL HYGIENE

(Monday Afternoon, February 16)
William A. White, M.D., Presiding
Superintendent, Saint Elizabeth's Hospital, Washington, D. C.

Rôle of the State Hospital in Mental Hygiene
J. Allen Jackson, M.D., Superintendent, Danville State Hospital, Danville, Pa.

Rôle of Community Clinics in Mental Hygiene
George S. Stevenson, M.D., Director, Division on Community Clinics, The National Committee for Mental Hygiene, New York.

Child Guidance Clinics
Lawson G. Lowrey, M.D., Director, Institute for Child Guidance, New York.

PROBLEMS IN MEDICAL EDUCATION

(Monday Afternoon, February 16)
Henry S. Houghton, M.D., Presiding
Dean, State University of Iowa College of Medicine, Iowa City

The Present Trend of Medical Education
Charles P. Emerson, M.D., Dean, Indiana University School of Medicine, Indianapolis.

The Significance of Present Entrance Requirements
Wilburt C. Davison, M.D., Dean, Duke University School of Medicine, Durham, N. C.

The Premedical Years
(Speaker to be announced)

Methods of Examining Medical Students for Degrees: A Comparison with European Methods
Willard C. Rappleye, M.D., Director of Study, Commission on Medical Education, New Haven, Conn.

THE TEACHING OF PSYCHIATRY

(Tuesday Morning, February 17)
Adolf Meyer, M.D., Presiding
Psychiatrist-in-Chief, Johns Hopkins Hospital, Baltimore

Some Present-Day Trends in the Teaching of Psychiatry
Franklin G. Ebaugh, M.D., Director, Colorado Psychopathic Hospital, Denver

The Training of the Specialist in Psychiatry
C. Macfie Campbell, M.D., Director, Boston Psychopathic Hospital, Boston.

Psychiatry and the General Practitioner
H. Douglas Singer, Professor of Psychiatry, University of Illinois College of Medicine, Chicago.

PROBLEMS IN MEDICAL EDUCATION (Cont.)

(Tuesday Morning, February 17)
E. P. Lyon, M.D., Presiding
Dean, University of Minnesota Medical School, Minneapolis

The Continuous Session Plan
B. C. H. Harvey, M.D., Dean of Medical Students, Graduate School of Medicine of the Ogden Graduate School of Science, University of Chicago, Chicago.

The Preceptor System Plan
Llewellyn R. Cole, M.D., Graduate Hospital of the University of Pennsylvania Graduate School of Medicine, Philadelphia.

A Plan for Training the Medical Student in General Practice
Harry E. Kaplan, M.D., Stockton, Calif.

Deficiencies in the Teaching of Surgery
W. T. Coughlin, M.D., Professor of Surgery and Director of the Department of Surgery, St. Louis University School of Medicine, St. Louis.

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

FIRST SESSION

MEDICAL EDUCATION AND LICENSURE

(Tuesday Morning, February 17)
Charles B. Pinkham, M.D., Presiding
President, Federation of State Medical Boards of the United States, Sacramento, Calif.

Responsibility of Medical Schools to Registration and Licensure
Burton D. Myers, M.D., Chairman, Executive Council, Association of American Medical Colleges, Bloomington, Ind.

Registration of Foreign Medical Graduates in the United States
Willard C. Rappleye, M.D., Director, Commission on Medical Education, New Haven, Conn.

State Board Examinations
William Jepson, M.D., Chairman, Iowa State Board of Medical Examiners, Sioux City.

Discussion: J. Stewart Rodman, M.D., Medical Secretary, National Board of Medical Examiners, Philadelphia; G. M. Williamson, Secretary, North Dakota State Board of Medical Examiners, Grand Forks; J. H. J. Upham, M.D., Member, Ohio State Medical Board and Dean, Ohio State University, College of Medicine, Columbus.

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

SECOND SESSION

STATE BOARD PROBLEMS

(Tuesday Afternoon, February 17)
Charles B. Pinkham, M.D., Presiding

Operation of the Basic Science Law in Wisconsin
J. Gurney Taylor, M.D., Member, Wisconsin State Board of Medical Examiners, Milwaukee.

Nonmedical Directors of State Departments of Public Welfare and Licenses
H. J. Lehnhoff, M.D., Secretary, Nebraska Board of Medical Examiners, Lincoln.

Who Shall Be Permitted to Continue the Practice of Medicine?
F. C. Warnshuis, M.D., Secretary, Michigan Board of Registration in Medicine, Detroit.

Discussion: I. D. Metzger, M.D., President, Pennsylvania Board of Medical Education and Licensure, Pittsburgh; Henry M. Fitzhugh, M.D., Secretary, Maryland Board of Medical Examiners, Baltimore; William Whitridge Williams, M.D., Secretary, Colorado Board of Medical Examiners, Denver.

GRADUATE MEDICAL EDUCATION

(Tuesday Afternoon, February 17)
C. C. Bass, M.D., Presiding
Dean, Tulane University of Louisiana School of Medicine, New Orleans

The Training of the Specialist
William J. Mayo, M.D., Mayo Clinic, Rochester, Minn.

Some "Whats" and "Whys" in Graduate Medical Education
G. H. Meeker, M.D., Dean, University of Pennsylvania Graduate School of Medicine, Philadelphia.

Extension Courses for Rural Physicians
Joe P. Bowdoin, M.D., Deputy Commissioner, State Board of Health, Atlanta, Ga.

The Future of Graduate Medical Education in the United States
James S. McLester, M.D., Member, Council on Medical Education and Hospitals, American Medical Association, and Professor of Medicine, University of Alabama School of Medicine, Birmingham.

HOSPITAL PROBLEMS

(Tuesday Afternoon, February 17)
(Presiding officer to be announced)

The Hospital, Medical College, and Intern
A. C. Bachmeyer, M.D., Superintendent, Cincinnati General Hospital, Cincinnati.

The Hospital Training of Interns
H. L. Foss, M.D., Surgeon-in-Chief, George F. Geisinger Memorial Hospital, Danville, Pa.

Hospitals and the Law
Thomas V. McDavitt, J.D., Bureau of Legal Medicine and Legislation, American Medical Association, Chicago.

Discussion: Fred G. Carter, M.D., Superintendent, Ancker Hospital, St. Paul.

THE TEACHING OF PEDIATRICS

(Wednesday Morning, February 18)
Isaac A. Abt, M.D., Presiding
Professor of Pediatrics, Northwestern University Medical School, Chicago

Present Status of Pediatric Teaching in Medical Schools
Bordon S. Veeder, M.D., Professor of Clinical Pediatrics, Washington University School of Medicine, St. Louis.

The Position of Pediatrics in Medicine and Medical Teaching
Clifford S. Grulee, M.D., Professor of Pediatrics, Rush Medical College, University of Chicago, Chicago.

What [illegible] Department of Pediatrics in a Medical School
A. [illegible], B. K. Rachford Professor of Pediatrics, College of Medicine, Cincinnati.

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

THIRD SESSION

MEDICAL REGISTRATION AND LAW ENFORCEMENT

(Wednesday Morning, February 18)
Harold Rypins, M.D., Presiding
President-Elect, Federation of State Medical Boards of the United States, Albany, N. Y.

Distribution of Physicians in Kentucky
Dr. W. L. Chambers, University of Kentucky, Louisville.

Relation of the Organized Profession to Medical Registration and Enforcement
Walter F. Donaldson, M.D., Member, Council on Medical Education and Hospitals, American Medical Association, and Secretary, State Medical Society of Pennsylvania, Pittsburgh.

The Control of the Unlicensed Practitioners
Hon. Sol. Ullman, Deputy Attorney General of New York, Albany.

The American System of Medical Registration and Licensure
H. M. Platter, M.D., Secretary, Ohio State Medical Board, Columbus.

Discussion: Arthur T. McCormack, M.D., Secretary, Kentucky State Board of Health, Louisville; Thomas J. Crowe, M.D., Secretary, Texas Board of Medical Examiners, Dallas; John R. Neal, M.D., Member, Professional Committee, Department of Registration and Education of the State of Illinois, Springfield.

American Conference on Hospital Service

FIRST SESSION

CONVALESCENT CARE

(Wednesday Morning, February 18)
Harry E. Mock, M.D., Presiding
President, American Conference on Hospital Service, Chicago

Survey of Convalescent Care in the United States
E. H. L. Corwin, Ph.D., Chairman, Committee on Convalescent Care, American Conference on Hospital Service, New York.

Report of Committee to Study Possibilities for Convalescent Care
James A. Britton M.D., Chicago.

(Other subjects and speakers to be announced later)

Joint Session of the American Conference on Hospital Service and the Council on Physical Therapy of the American Medical Association

(Wednesday Afternoon, February 18)
Merritte W. Ireland, M.D., Presiding
The Surgeon General, U. S. Army, and Member, Council on Medical Education and Hospitals, American Medical Association, Washington, D. C.

Physical Therapy and Teaching Hospitals
(Speaker to be announced.)

Occupational Therapy
W. R. Dunton, Jr., M.D., Harlem Lodge, Catonsville, Md.

Rehabilitation and Convalescent Care
E. H. L. Corwin, Ph.D., Executive Secretary, Committee on Public Health Relations, New York Academy of Medicine, New York.

Discussion: Harry E. Mock, M.D., Chicago.

ORGANIZATIONS REPRESENTED

Participating in the congress of the Council on Medical Education and Hospitals of the American Medical Association will be the Federation of State Medical Boards of the United States, and the American Conference on Hospital Service. The Central Council for Nursing Education will hold an institute for lay boards of hospitals and public health nursing organizations, on Tuesday, February 17. The Council on Medical Education and Hospitals takes this opportunity to invite every one who may be interested to attend the three-day conference, whether he receives a personal invitation or not.

REDUCED RAILWAY FARES

In order to obtain the reduced rate of one and one-half fares for the round trip to Chicago, it will be necessary to secure at least 150 receipts showing that full fares have been paid on the trip to Chicago. The reduced fares, if enough receipts are secured, will apply to friends and relatives as well as to those regularly invited to the conference.

Be sure to obtain *a certificate receipt for your fare to Chicago,* however small it may be, so that those coming from distant states or across the continent will have the benefit of the one-half return fare. This receipt, after being countersigned by an official of the passenger associations, who will be present at the Palmer House, will entitle its holder to the reduced fare on the return trip.

DINNERS

All in attendance at the congress, ladies included, will be invited to dinners as follows:

Monday Evening. 7 p. m. The Council on Medical Education and Hospitals will hold a joint dinner with the Central Council on Nursing Education. Toastmaster, Hon. Ray Lyman Wilbur, Secretary of the Interior. Principal speaker, Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physic, Harvard University Medical School. Informal.

Tuesday Evening. 6:30 p. m. Federation Dinner. John W. MacConnell, M.D., Davidson, North Carolina, vice president, presiding. Address of the president, Charles B. Pinkham, M.D., Sacramento, Calif. Informal.

CONTRIBUTIONS TO PERSHING MEMORIAL

The response to the request for contributions for the Medical Salon in Pershing Hall, Paris, has not been as prompt or as extensive as it should be. It is to be hoped that the medical profession will see the desirability of aiding this cause. It is far better to have small contributions from many physicians than to depend on a few to make up the total. Up to noon of December 15, additional contributions were received from the following:

Thomas K. Davis, M.D., New York
Howard Fox, M.D., New York
Francis M. O'Gorman, Buffalo
Macy L. Lerner, M.D., Rochester, N. Y.
J. L. Lattimore, M.D., Topeka, Kan.
J. H. Walsh, M.D., Chicago
Charles H. Hulick, M.D., Shelbyville, Ill.
James C. Ferguson, M.D., St. Paul
Harvey B. Stone, M.D., Baltimore
G. Willis Bass, M.D., Minneapolis
Henry Holm, M.D., Detroit
S. N. Trockey, M.D., Chicago
Donald D. Forward, M.D., Ashtabula, Ohio
Mary Harley, M.D., Sweet Briar, Va.
Allen H. Bunce, M.D., Atlanta, Ga.
Wallace C. Dyer, M.D., Evansville, Ind.
Harmon L. Stanton, M.D., Evansville, Ind.
Robert Acker, M.D., South Bend, Ind.
W. H. Wilmer, M.D., Baltimore
James McCrea, M.D., Fulda, Minn.
J. Scott Oehrle, M.D., Monongahela, Pa.
Orlando H. Petty, M.D., Philadelphia
R. E. Seitz, M.D., Bozeman, Mont.
Fred E. Clow, M.D., Wolfeboro, N. H.
Eugene J. Asnis, M.D., Philadelphia
J. Forrest Burnham, M.D., Lawrence, Mass.
Clifford J. Pearsall, M.D., Salt Lake City
Ira I. Kaplan, M.D., New York
O. B. Pomeroy, M.D., Cleveland
Walter A. Strayer, M.D., Glenshaw, Pa.
H. H. Amsden, M.D., Concord, N. H.
Walter L. Bierring, M.D., Des Moines, Iowa
George F. Glass, M.D., Cleveland
Reginald Fitz, M.D., Boston
Alfred Meyer, M D., New York
W. Eugene Currier, M.D., Leominster, Mass.
Albert Evans, M.D., Boston
Frank Brooks Foster, M.D., Peterborough, N. H.
Joseph P. McMahon, M.D., Milwaukee
David P. Waldman, M.D., New York
Esther M. Closson, M.D., Tucson, Ariz.
Max Dreyfoos, M.D., Cincinnati
M. L. Holliday, M.D., Fillmore, Mo.
Joseph Baum, M.D., Far Rockaway, N. Y.
J. J. Hood, M D., Cicero, Ill.
George W. Norris, M.D., Philadelphia
Mitchell Seltzer, M.D., Dallas, Texas
F. A. Long, M.D., Madison, Neb.
Vincent S. Mancuso, M.D., Detroit
W. R. Roberts, M.D., Cissna Park, Ill.
R. R. McHenry, M.D., Norfolk, Va.
Henry Abrahm, M.D., San Francisco
Henry M. Mills, M.D., Brooklyn
W. H. Garrison, M.D., White Hall, Ill.
Franklin W. Mathewson, M.D., Oakdale, Pa.
A. Szwajkart, M.D., Chicago
Damon B. Pfeiffer, M.D., Philadelphia
Joel E. Goldthwait, M.D., Boston
W. E. Carson, M.D., Pittsburgh
G. S. Murray, M.D., Columbus, Ga.
James F. Rooney, M.D., Albany, N. Y.
James B. Ungles, M.D., Satanta, Kan.
Marshal Fabyan, M.D., Boston
William T. Myers, M.D., Aldrich, Mo.
P. C. Coleman, M.D., Colorado, Texas
L. P. Warren, M.D., Wichita, Kan.
A. M. Purves, M.D., Des Plaines, Ill.
J. E. Keeling, M.D., Waldron, Ind.
W. Q. Skilling, M.D., Lonaconing, Md.
Zoda D. Lumley, M.D., Wood River, Ill.
L. B. McBrayer, M.D., Southern Pines, N. C.
James W. Smith, M.D., New York
Winfield Scott Cleland, M.D., Delta, Colo.
Ernest S. du Bray, M.D., San Francisco
R. de R. Barondes, M.D., San Francisco
Salinas, Monterey Chapter, Disabled American Veterans World War, California
Robert Emery Brennan, M.D., New York
Charles T. Francis, M.D., Fairmont, W. Va.
John H. Peck, M.D., Des Moines, Iowa
Paul M. Allis, M.D., Lewistown, Pa.
Abby N. Little, M.D., Laconia, N. H.
Friend, Peoria, Ill.
Albert A. Hornor, M.D., Boston
William E. Stevens, M.D., San Francisco
E. G. Brandenberger, M.D., Detroit
Leonard F. Bender, M.D., Frankford, Pa.
Richard Reeser, M.D., Columbia, Pa.
George E. Alleman, M.D., Altoona, Pa.
C. W. Mack, M.D., Livermore, Calif.
Ira Cohen, M.D., New York
Delaware County Medical Society, Chester, Pa.
George H. Garrison, M.D., Oklahoma City
J. R. Knowles, M.D., North Station, Boston
Samuel Steiner, M.D., Philadelphia
S. Fosdick Jones, M.D., Denver
Clifford Grulee, M.D., Chicago

THE PHILADELPHIA SESSION

Announcement of Exhibit under the Auspices of the Section on Diseases of Children

The officers of the Section on Diseases of Children have appointed the following as members of the Committee on Section Exhibit: T. C. Hempelmann, M.D., St. Louis; Joseph Stokes, Jr., M.D., Philadelphia, and F. Thomas Mitchell, M.D., chairman, Memphis, Tenn.

The committee announces that it is desirous of having a creditable and enlightening section exhibit. The topics suggested by the committee are:

(*a*) Relation Between Underweight and Malnutrition.
(*b*) Diet in Pediatric Practice.
(*c*) Selected Exhibits of Educational and Research Character.

The members of the specialty are asked by the committee to determine whether or not they have work suitable for exhibition and, if so, to communicate with the committee chairman, Dr. F. Thomas Mitchell, 376 South Bellevue Street, Memphis, Tenn. All applications must be made on the regular application form, which is the one required by the A. M. A. Committee on Scientific Exhibit. A circular letter giving information concerning this exhibit, together with the usual application blank, has been mailed to those who have registered in the section during the last three years and to subscribers to the Jacobi Fund. Those who have not registered in this section but who are interested in such an exhibit may obtain a circular letter and application blank by sending the request to Dr. Mitchell or to the Director, Scientific Exhibit, 535 North Dearborn Street, Chicago. Applications should be filed not later than Feb. 10, 1931, with Dr. Mitchell.

Committee Appointments

Dr. George C. Yeager, chairman of the Local Committee on Arrangements, has appointed Dr. Frederick S. Baldi chairman of the Subcommittee on Hotels; Dr. Joseph C. Doane chairman of the Subcommittee on Publicity, and Dr. Fred D. Weidman chairman of the Subcommittee on Scientific Exhibit.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, 10:30 on Thursday and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 22. What Is Tuberculosis?
December 23. The Century's Greatest Story.
December 27. The Wooden Indian.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

December 22. Is It Blue Monday or Rose Monday?
December 23. Don't Blame the Weather.
December 24. The Disease That Deforms.
December 26. The Pace That Kills.
December 27. Save the Children from Scarlet Fever.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Illegal Practitioner Jailed.—Augustin Ocampo, Los Angeles, was arrested, November 5, on a charge of practicing medicine without a license. He pleaded guilty in municipal court, was sentenced to 180 days in jail and is now serving the sentence. January 10, he pleaded guilty on two counts to violation of the state medical practice act and was given a thirty day suspended sentence on each count. Ocampo claimed that he practiced in the city of Mexico for twelve years, coming to California in 1929.

Society News.—The San Francisco County Medical Society was addressed, November 18, by Dr. Samuel H. Hurwitz on "Asthma and Occupation"; Dr. Adolph Berg presented a case of acrodynia, and Drs. Edward B. Shaw, Huldah E. Thelander and Margaret A. Limper, motion pictures demonstrating the early diagnosis of poliomyelitis.——The Los Angeles County Medical Association was addressed, December 5, by Dr. William Gerry Morgan, Washington, D. C.; Dr. Joseph Colt Bloodgood, Baltimore, spoke on "The Importance for the Patient of the Diagnosis of Cancer and Lesions That Are Not Cancer by Both the General Practitioner and the Specialist."——Drs. Albert L. Mathieu, Portland, and Oscar Donovan Johnson, Los Angeles, addressed the Los Angeles Obstetrical Society, December 9, on "The Aschheim-Zondek Pregnancy Test" and "Uterotubal Insufflation with Kymographic Tracings," respectively; Dr. Rudolph Marx presented a case report on acardiacus amorphus.——Dr. Edward B. Towne, San Francisco, addressed the San Diego County Medical Society, December 9, on "Roentgen Ray in Diagnosis and Localization of Tumors of the Brain."——Dr. Joseph C. Aub, Harvard University Medical School, Boston, addressed the San Diego Academy of Medicine, December 8, on "The Rôle of Inorganic Salts in Internal Medicine."——Dr. Oliver Hazard Perry Pepper, University of Pennsylvania School of Medicine, Philadelphia, will give the annual Scripps Metabolic Clinic Lectures in San Diego, January 8-10. He will deliver an evening lecture in La Jolla, January 10, on types of anemia, exclusive of pernicious anemia.——Dr. Paul J. Hanzlik, professor of pharmacology, Stanford University School of Medicine, San Francisco, gave a series of lectures, December 16-19, before the San Diego Academy of Medicine and the Long Beach Academy of Medicine, on bismuth compounds in antisyphilitic therapy, metallotherapy of edema, intravenous therapy and colloidal dyes in intoxications.——Dr. Albert H. Rowe, Oakland, addressed the Alameda County Medical Association, December 15, on "Bronchial Asthma."

New Life Sciences Building at University of California.—The work of moving thirteen departments from eleven wooden frame buildings into the new fireproof Life Sciences Building at the University of California was completed in July. The building, which is said to be the largest building devoted to academic purposes on any campus in America, is about 500 feet long, 250 feet wide, five stories high, and in the form of a rectangle built around a court. There are 560 offices, laboratories, classrooms, auditoriums, and museum and library rooms, one auditorium seating 560 people and two smaller rooms each seating 208. The departments housed in the building are bacteriology, anatomy, biochemistry, botany, household science, hygiene, vertebrate zoology and museum of vertebrate zoology, physiology, plant nutrition, psychology and zoology, and three bureaus of the state board of health maintain offices and laboratories there. The building is constructed of reinforced concrete with natural finish on the outside. Interior partitions are made of sound-proof hollow tile painted white. The classrooms and auditoriums are finished in acoustic plaster.

ILLINOIS

Personal.—The Ottawa Tuberculosis Sanatorium was recently purchased by Dr. Royal W. Dunham.

Chicago

Reduction in Rates for Nurses.—Under a plan announced by the Chicago Medical Society, the services of trained nurses may be obtained for twenty hours at a cost of one dollar more than the prices previously charged for twelve hours. The rate will be $8 for a twenty hour day. The present rate of $7 for a twelve hour day remains as at present. The plan also makes available the practical nursing and undergraduate nursing service at one-third less cost than graduate service. Hourly nursing service will be obtainable at a rate of $2 flat for the first hour and $1 each hour thereafter when the family physician believes this will be sufficient. The new rates result from the fact that the public at present is disposed to cut nursing time to the minimum. More cases are now being cared for by relatives and neighbors, it is reported, than at any time in the last ten years. Already 60 per cent of the demand is for twenty hour service and only nurses who exemplify the highest standard are suitable for this. The new service is available through the nurses' registry of the Chicago Medical Society.

Society News.—Dr. Richard B. Stout, Madison, Wis., addressed the Chicago Surgical Society, November 7, on "Spinal Anesthesia Volume Control Technic."——The Chicago Pathological Society was addressed, November 10, among others, by Drs. Evan M. Barton and Lloyd Catron on "Dissecting Aneurysm of the Aorta" and "Leiomyosarcoma of the

Pleura," respectively.——Dr. Grafton Elliot Smith of the Institute of Anatomy, University College, London, England, addressed a joint meeting of the Institute of Medicine of Chicago and the University of Chicago, November 26, on "The Peking Man and the Evolution of the Human Brain."——The eighth annual joint meeting of the Illinois and Chicago societies of industrial medicine and surgery was addressed, December 3, by Drs. Hiram W. Orr, Lincoln, Neb., and Henry W. Newman, Cincinnati, on "Osteomyelitis" and "Nonsurgical Industrial Medicine," respectively.——The first meeting of the Chicago Society of Allergy will be addressed, December 22, by Drs. Samuel M. Feinberg and Harry L. Huber on "Historical Aspects of Allergy" and "Variations in Tolerance to Pollen Extracts," respectively.——Dr. James B. Herrick gave a brief memorial tribute to Dr. Charles E. Paddock before the Chicago Gynecological Society, December 19. Other speakers were: Drs. Alexander G. Gabrielianz on "Spinal Anesthesia in Gynecology," and Jacob P. Greenhill, "Rupture of a Corpus Luteum with Intra-Abdominal Hemorrhage."——The Chicago Roentgen Society was addressed, December 10, by Drs. George T. Palmer, Springfield, Ill., on "X-Ray Diagnosis of Tuberculosis," and William A. Evans, Detroit, "Indications for and Results of Surgical Treatment of Pulmonary Lesions as Observed Roentgenologically"; Dr. Benjamin Goldberg spoke on "Roentgenologic Aspects of Pulmonary Tuberculosis in Childhood."——Among others, Dr. Sol R. Rosenthal addressed the Chicago Pathological Society, December 8, on "Aneurysm of the Cystic Artery and Melanocarcinoma of the Gallbladder."——Among the speakers who addressed the Chicago Tuberculosis Society, December 11, were: Drs. Robert G. Bloch on "Experimental Infection with Tuberculosis"; Russell D. Herrold, "Laboratory Diagnosis of Tuberculosis," and Ralph B. Bettman, "Feasibility of Intrapleural Operations."——The Chicago Society of Internal Medicine was addressed, December 15, among others, by Dr. Joseph L. Miller on "Classification, Etiology and Pathology of Chronic Arthritis."

MASSACHUSETTS

Society News.—Dr. Walter B. Cannon, Boston, addressed the Harvard Medical Society, December 9, on emotional increase of heart rate, and Dr. John M. Flynn, on sulphur metabolism.——Dr. Harry M. Zimmerman, Yale University School of Medicine, New Haven, Conn., spoke before the New England Pediatric Society in Boston, December 12, on "Nonpurulent Encephalitis in Children."——Dr. Harry Blotner, Boston, addressed the Haverhill Medical Club, December 4, on "Periodic Health Examinations."

Personal.—Dr. James Arthur Gage, Lowell, recently retired from the practice of medicine and surgery; he was honored at a testimonial banquet given by the Middlesex North District Medical Society, December 10.——Dr. Otto Folin, Hamilton Kuhn professor of biologic chemistry at Harvard University Medical School, recently received the Scheele Medal of the Chemical Society of Stockholm. He is the first recipient of that medal. Announcement of its award was made at the dedication of the building of the Rockefeller Institute for Biochemistry in Stockholm.

MISSOURI

Milk Commission Discontinues Milk Distribution.—After twenty-six years of service in distributing pure milk for infant feeding among poor families, the St. Louis Pure Milk Commission recently turned over this function to four local social agencies. The laboratory of the commission was opened in June, 1904, for sterilizing and modifying milk, which was distributed to congested districts to be dispensed on prescription of physicians. During the twenty-six years, 8,952,612 bottles were distributed. An infant welfare station opened in 1906 under the auspices of the commission is said to have been the first of these stations in the United States.

Society News.—Dr. Samuel R. Cunningham, Oklahoma City, addressed the Jackson County Medical Society, December 9, on "Skeletal Traction in the Treatment of Fractures of Long Bones."——The South East Missouri Medical Association held its fifty-fourth annual meeting in Poplar Bluff, October 7-8; the following speakers and their subjects were included in the program: Drs. Daniel H. Hope, Cape Girardeau, "Ectopic Pregnancy, Causes and Treatment"; John D. Hayward, St. Louis, "Fundamentals in Diagnosis of the Acute Abdomen," and Neil S. Moore, St. Louis, "Late Syphilis Involving the Genito-Urinary Organs." The next annual meeting will be held at Campbell.

NEBRASKA

Personal.—A portrait of Dr. John E. Summers, Omaha, a gift of medical and lay friends, was unveiled at the Clarkson Hospital, Omaha, November 2. Dr. Donald Macrae, Jr., Council Bluffs, Iowa, spoke of the life work of Dr. Summers. He has been president of the Nebraska State Medical Association, the Missouri Valley Medical Association and the Western Surgical and Gynecological Society.

Society News.—Physicians of Dawes County and the surrounding territory met at Chadron, November 12, and organized the North-West County Medical Society; Drs. Albert L. Cooper, Scottsbluff, and Frank B. Young, Gering, gave an illustrated lecture on "Some Aspects of Paleopathology"; the second Wednesday of the month was chosen as the date of meeting.——The Cheyenne-Kimball County Medical Society was addressed in Sidney, November 14, by Drs. Dee L. Abbott, Sidney, and Joseph B. Pankau, Dalton, on "Anaphylaxis" and "Treatment of Pneumonia," respectively.

Testimonial Dinner to Dr. Orr.—Members of the Lancaster County Medical Society tendered a testimonial dinner, November 4, to Dr. Hiram W. Orr, Lincoln, on his completion of twenty-five years of service at the Nebraska Orthopedic Hospital. A testimonial inscription bearing the names of all those present at the dinner was presented to Dr. Orr. Among others, Dr. John P. Lord, Omaha, reviewed the history and early struggles of the orthopedic hospital, of which he was the first surgeon, with Dr. Orr as his assistant. Dr. Orr was president of the Nebraska State Medical Society in 1920.

NEW YORK

Society News.—The Medical Society of the County of Albany was addressed, December 15, by Dr. Charles K. Winne, Jr., on "Serum Therapy in Scarlet Fever."——The Queensboro Pediatric Society was addressed, December 11, at Forest Hills, Long Island, by Drs. Benjamin Kramer, Brooklyn, on "Rickets—History, Pathology, Diagnosis and Treatment," and Lee W. Thomas, "The Maintenance of Child Health."

Eastman Gives Dental Clinic to Stockholm.—George Eastman, Rochester manufacturer, is reported to have given $1,000,000 to the city of Stockholm, Sweden, for a dental dispensary similar to the Rochester Dental Dispensary and to those recently established by Mr. Eastman in London and Rome. The Stockholm clinic will include one feature not provided for in the other foreign cities, a school for dental hygienists similar to that of the Rochester dispensary. The Chicago *Tribune* says that the gift has been accepted and a site chosen for the building.

New York City

Historic Microscope.—A microscope thought to be nearly 200 years old has been presented to the New York Academy of Medicine by Dr. Warren Coleman. The case bears a brass plate on which is engraved: "This Microscope brought from Holland by Jan Evertson Keteltas in the year 1649 is given by his Descendant Henry Keteltas Aug 12th 1895 to Doctor Warren Coleman as a pleasant remembrance." According to a plate inside the case, the instrument was made by Benjamin Cole, who is known to have entered business in London in 1751. Authorities believe, therefore, that the microscope given to Dr. Coleman was not the one originally brought to this country in 1649, but one that replaced it about 100 years later.

Loss of Light Due to Smoke.—A report recently issued by the U. S. Public Health Service described the loss of light due to smoke on Manhattan Island with special reference to its relation to the nature of the weather, the relative humidity of the air and the velocity and direction of the wind. The investigations were made simultaneously on the roof of the U. S. Marine Hospital, 67 Hudson Street, which is 79 feet above street level and 93 feet above high water, at the lower end of Manhattan Island where the air is unusually smoky and on the roof of a building at the U. S. Quarantine Station on Staten Island, in lower New York Bay, 35 feet above the ground and 40 feet above high water, located about 9 miles south of the marine hospital, where the air was comparatively clear. The instruments used for recording daylight consisted of photo-electric cells and the recording potentiometer. The comparison of results showed that there was a large relative loss of light at the Hudson Street hospital due to smoke, in some cases greater than 50 per cent. The average percentage loss for the whole year was 16.6 for clear days; 34.6 for cloudy days, and 21.5 for all days. The average percentage loss of light throughout the year was 30.2 at 8:30 a. m., 16.5 at 1:30 p. m., and 21.0 at 3:30 p. m. The percentage losses increased and decreased with the relative humidities. For clear days the greatest average monthly percentage loss was 23.1 in November and the least 12.1 in May, with corresponding average relative humidities of 64.6 and 39.0 per cent. For cloudy days these values were 52.7 in September and 24.6 in December with corresponding relative humidities of 99.4 and 85.9 per cent. The percentage loss of light was found to be 1.5 times as great for cloudy days as for clear days for relative humidities between 40 and 80 per cent and for wind velocities between 10.0 and 19.9 miles per hour.

Society News.—At the annual meeting of the Frontier Nursing Service, January 15, at Mecca Hall, Mrs. Mary Breckinridge, director of the field work, will present motion pictures in connection with her annual report of the work in the Kentucky mountains.——Dr. Joseph Colt Bloodgood will address the International and Spanish Speaking Association of Physicians, Dentists and Pharmacists, December 26, on the education of the public in malignant and nonmalignant diseases and the popularization of periodic health examinations. The society was addressed, November 28, by Dr. Anthony Bassler on "Intestinal Toxemia," illustrated, and Dr. Oswald S. Lowsley, "Intravenous Pyelography with Uroselectan."——Dr. Byron H. Goff addressed the Brooklyn Gynecological Society, December 5, on "A Histologic Study of the Vaginal Walls in Cystocele and Rectocele."——Dr. George R. Minot, Boston, will give the seventh of a series of afternoon lectures at the New York Academy of Medicine, January 9, on "Treatment of Anemia." The fifth lecture was delivered by Dr. Alfred F. Hess, December 12, on "Therapeutics of Ultraviolet Light," and the sixth by Miss Frances Perkins, state industrial commissioner, Albany, December 19, on "Occupational and Industrial Diseases."——Dr. Merrill C. Sosman, Boston, addressed the New York Roentgen Society, December 15, on "The Value of the X-Rays in the Diagnosis of Intracranial Tumors."——At a meeting of the New York Pathological Society, December 17, addresses were delivered by Drs. Arthur J. Lapovsky and Boris Kwartin on "Ruptured Ovarian Pregnancy"; Benjamin M. Vance on "Injuries of the Pons"; Helen Sinclair Pittman on "An Evaluation of the Erythrocyte Sedimentation Reaction as a Routine Diagnostic Procedure in the General Hospital"; Nicholas M. Alter, Marshall C. Pease, Jr., and Adolph G. DeSanctis on "Albers-Schoenberg Disease; 'Marble Bones.'"——The Medical Association of the Greater City of New York conducted a symposium on medical hydrology, December 15, with Drs. William Edward Fitch, Bedford Springs, Pa., and Allen W. Holmes, Watkins Glen, N. Y., as the speakers.

OHIO

Personal.—Dr. Vera C. Iber, formerly of Eaton, has been appointed head of the department of women's diseases at the Mayo Clinic, Rochester, Minn.——Dr. George Bourne Farnsworth, for twenty years on the faculty of Western Reserve University School of Medicine, has resigned as assistant professor of obstetrics. He will retire from active practice to devote his time to travel.

Hospital News.—A new $500,000 pediatric research building has been opened at Children's Hospital, Cincinnati. Dr. Albert Graeme Mitchell is director of the hospital.——A new division devoted to neuropsychiatry was recently opened at Mercy Hospital, Canton, under the supervision of Dr. John D. O'Brien. Patients may be referred for supervision and treatment or for consultation only; when patients are referred for treatment, the hospital invites the physician to act as consultant. The purpose of the hospital is to make available sound information on mental health and to help bring neuropsychiatric service within the reach of persons of moderate means.

Drought-Stricken Cities Ask Aid.—Four Ohio cities, reported to be suffering severely from the long continued drought and in danger of typhoid epidemics, have appealed to the state department of health for relief. Barnesville, largest of the towns, had only two weeks' supply of water December 4. By laying an emergency pipe line to an abandoned mine, engineers of the health department were able to increase the supply to last about thirty days. Caldwell, a town of 1,800 persons, was said to have no water. Until recently the town had pumped sewage flow from a creek for water to fight fires, but with the coming of cold weather this supply was frozen. Blanchester and Greenwich are the other towns in which conditions are said to be alarming. Unless some other means of relief is found, it will be necessary to transport water from other towns.

PENNSYLVANIA

Society News.—The Cambria County Medical Society was addressed in Johnstown, December 11, by Dr. Robert C. Davis, on "Treatment of Varicose Veins"; Dr. Olin G. A. Barker delivered a lecture and presented motion pictures on Russia; Dr. Henry K. Mohler, Philadelphia, addressed the society, November 13, on "Disturbances of Carbohydrate Metabolism in Relation to Cardiovascular Disease."——Raymond Adams Dutcher, head of the department of biochemistry at Pennsylvania State College, State College, addressed the Lycoming County Medical Society, December 12, on "Vitamins in Human and Animal Nutrition."

TENNESSEE

Hospital News.—A Negro unit as an addition to the Knoxville General Hospital was assured when the city council of Knoxville voted an appropriation of $25,000 toward the cost, November 28, it is reported in the Knoxville *Journal*. The Julius Rosenwald Foundation contributed $50,000 and the remainder of the fund has been contributed from local sources. Negro physicians, interns and nurses will comprise the staff of the unit, in accordance with an agreement with the Rosenwald Foundation.

VIRGINIA

Personal.—Henry G. Parker, city bacteriologist of Norfolk since 1917, and recently assistant director of public welfare, has been made director of public welfare to succeed Dr. Powhatan S. Schenck, who is on indefinite leave of absence on account of ill health. Dr. Frank H. Hancock, physician to the municipal hospital, has recently been installed as health commissioner. Dr. Schenck had served in the dual capacity since 1918.

University News.—An anonymous gift of $2,500 for purposes of chemicomedical research at the Medical College of Virginia, Richmond, has been announced. This gift will make possible a full time worker for one year in the department of chemistry. Other departments of the school of medicine will fully cooperate in the special line of study to be undertaken and will share in responsibility for the work. William John Gies, Ph.D., New York, was the chief speaker at the medical college on founder's day, December 1, on the ninety-third anniversary of the institution. His subject was "Progress in Health Services."

WEST VIRGINIA

Society News.—"Technic of Elective Version with Lantern Slide Demonstration Including Immediate Repair of Birth Canal Injuries Following Delivery" was the subject of Dr. Irving W. Potter, Buffalo, before the Ohio County Medical Society, Wheeling, December 5. Dr. Eugene P. Pendergrass, Philadelphia, addressed the society, November 21, on "X-Ray Diagnosis of Diseases of the Upper Respiratory Tract."

Licensure Requirements Raised.—The Public Health Council at a meeting at Morgantown, November 20-22, adopted the following regulations raising the requirements for the licensure of physicians: 1. All applicants for license by examination shall be required to have served one year of internship in a class A hospital before admission to the examination. 2. License by reciprocity will be issued only to those who have passed an examination subsequent to internship before the examining board of the state from which the application is filed. 3. Under no circumstances will applicants be admitted to the examination who have not received their professional degree. The regulation concerning reciprocity is not retroactive, it was stated.

WISCONSIN

Testimony of Physicians.—A proposal to change court rules to compel physicians to testify concerning information from patients in cases involving questions of sanity was defeated in the Wisconsin supreme court recently. The court held that the present procedure is a matter of substantive law and not a matter of practice and cannot be changed by the court.

Society News.—The Wood County Medical Society was addressed, November 11, at Marshfield, among others, by Dr. George L. McCormick, Marshfield, on "Recent Advances in Eye, Ear, Nose and Throat Treatment."——"Some Things the General Practitioner Should Know Regarding Nervous and Mental Diseases" was the subject of Dr. Arthur W. Rogers, Oconomowoc, before the November 13 meeting of the Marinette-Florence County Medical Society.——The University of Wisconsin Medical Society was addressed, November 21, by Dr. John Stanley Coulter, Chicago, on "Physical Therapy in General Practice."

GENERAL

Fraudulent Magazine Solicitor.—A man giving his name as D. L. Allerton and claiming to be a representative of Harper and Brothers is reported to be soliciting subscriptions to various publications from physicians in Iowa, Missouri and Nebraska. In answer to an inquiry, the firm of Harper and Brothers said that it did not employ agents and that the National Publishers Association was making an effort to apprehend the impostor.

Medical Bills in Congress.—S. J. Res. 213, introduced by Senator Smoot, Utah, and H. J. Res. 413, introduced by Representative Erk, Pennsylvania, propose to designate the first United States narcotic farm, to be established near Lexington, Ky., as the Stephen G. Porter Institute. S. 4784, introduced by Senator Bingham, Connecticut, and H. R. 14054, introduced by Representative Goss, Connecticut, propose to amend the National Prohibition Act, as supplemented, to permit physicians to prescribe malt liquors for medicinal purposes. H. R. 14268, introduced by Representative Rutherford, Georgia, proposes that officers, soldiers, sailors or marines who served in the military or naval forces of the Confederate states shall hereafter be admitted to the National Home for Disabled Volunteer Soldiers and to hospitals under the jurisdiction of the Veterans' Administration. H. R. 14275, introduced by Representative Glover, Arkansas, proposes to regulate the prescribing and use of waters from the Hot Springs Reservation at Hot Springs, Ark. H. R. 14693, introduced by Representative LaGuardia, New York, proposes to regulate the traffic in opium and narcotics, by regulating the shipments of such drugs to the United States from countries not signatories to the Hague Convention.

Another Child Welfare Foundation.—W. K. Kellogg of Battle Creek, Mich., has established a fund of $1,000,000 for immediate use with provision for additions that may reach $50,000,000, to be devoted to the aid of underprivileged children. The fund is to be known as the W. K. Kellogg Child Welfare Foundation. Children who are subnormal mentally or physically will receive scientific treatment to correct their defects or, if this is not possible, special training to minimize their handicaps. The work will be done largely in cooperation with schools. The activities will not be limited to Michigan, but aid will be extended wherever the need is apparent, subject to policies now being formulated. Dr. Stuart Pritchard, formerly of the Battle Creek Sanitarium staff, took up his duties as medical director of the foundation, December 1 (The Journal, December 6, p. 1751). Management of the foundation will be in the hands of a board, which includes, in addition to Dr. Pritchard: Wendell L. Smith, president and director; Eugene McKay, vice president and director; Lewis J. Brown, secretary-treasurer and director; Dr. Arthur C. Selmon and Earle Freeman, directors. During the past summer Mr. Kellogg established the Ann J. Kellogg School for Underprivileged Children at Battle Creek and a camp at Sherman Lake, where these children may spend summers under medical supervision.

Death Rate Decreases in 1929.—The U. S. Department of Commerce announced recently that 1,386,363 deaths occurred in 1929 in the registration area in continental United States, corresponding to a rate of 11.9 per thousand of population as compared with 12.1 in 1928. This area in 1929 comprised forty-six states, the District of Columbia, and nine cities in nonregistration states, with an estimated population, July 1, 1929, of 116,275,139, or 95.7 per cent of the total population; in 1928 the registration area included 95.3 per cent of the total population. The death rate from all causes per hundred thousand of population decreased from 1,207.1 in 1928 to 1,192.3 in 1929. This net decrease was almost entirely balanced by increases in influenza, diseases of the heart and meningococcus meningitis. Deaths from these three diseases alone caused 21.2 per cent of all deaths in 1928, and 22.7 per cent in 1929. Decreases among other important causes were for pneumonia (all forms), nephritis, congenital malformations and diseases of early infancy, tuberculosis (all forms), diarrhea and enteritis, diabetes mellitus, cancer and pellagra. Deaths from alcoholism decreased from a rate of 4.1 in 1928 to 3.7 in 1929. Deaths from accidental and unspecified external causes increased from 79.4 to 80.9. The types of accidents which showed the most noticeable increases were automobile accidents, excluding collisions with railroad trains and street cars (20.8 to 23.3) and accidental falls (14.1 to 14.6). A slight decrease was shown for deaths from drowning.

Report of Public Health Service.—Health conditions throughout the United States have been generally good during the past fiscal year, Surg. Gen. Hugh S. Cumming of the U. S. Public Health Service stated in his annual report to the present session of Congress. The death rate for pellagra has risen steadily from 2.5 per hundred thousand of population in 1924 to 5.5 in 1929. For five years there has also been a steady increase in the number of cases of meningococcus meningitis, but a slight decrease was noticed in the spring of 1930. Infantile paralysis was less prevalent than for several years during the calendar year 1929, but in the part of 1930 covered by the report a sharp increase was reported from several states. Smallpox has been increasing in the United States for three years. In forty-five states 34,685 cases of smallpox were reported in 1927, 38,114 in 1928 and 41,458 in 1929; 442 deaths occurred, although the disease was in most cases of a mild type. In the work of protecting the United States from importation of diseases from other countries, the report states that 20,645 vessels, 1,056,294 passengers and 1,380,241 seamen were inspected at domestic and insular ports and 1,211,796 alien passengers and 968,759 alien seamen were examined under the immigration law. Medical facilities for the care of seamen from merchant vessels were provided in 155 ports of continental United States and its insular and territorial possessions. The rapid development of intercontinental air travel has added a new phase to this work, the report points out. It is more necessary than ever to keep in touch with disease conditions throughout the world. Important events of the year were the change of the name of the Hygienic Laboratory to the National Institute of Health, with provision for acceptance of philanthropic gifts to finance research, and the creation of a division of mental hygiene, which assumed supervision of medical service in federal penal and corrective institutions. Congress also granted authority to the service for investigation of the abusive use of narcotics and the quantities necessary to supply the legal requirements of physicians in the United States. The personnel of the service in June, 1930, consisted of 1,476 medical officers and persons of other scientific ratings and 3,416 general and technical employees.

Maternal Mortality in the Registration Area.—The U. S. Department of Commerce announces that for the birth registration area the mortality from puerperal causes (7.0 per thousand live births) in 1929 was five tenths higher than the rate (6.5) for 1927, the last year for which the summary was published. The report says: "Confining the discussion to only three groups, namely, 'all puerperal causes,' 'puerperal septicemia' and 'other puerperal causes,' it will be noted that of the forty-six states for which data are available for 1929, South Carolina had the highest mortality rate (11.4), with Alabama and Louisiana next in order (each 9.9), Florida (9.5) and Georgia (9.3)." All the states with excessively high rates have large proportions of Negro populations. The states with high rates from puerperal septicemia are Montana (4.2), Colorado (4.0), New Mexico (3.9) and Arizona (3.8), all with vast rural areas sparsely settled, where hospital facilities and skilled medical care are difficult to procure. "Accidents of pregnancy" had a rate of only 0.7 for the entire registration area; puerperal hemorrhage and other accidents of labor, a rate of 1.6; and puerperal albuminuria and convulsions, 1.8, while the rates in the states for the three causes, respectively, were highest for Vermont (1.3), Delaware (3.0) and South Carolina (4.7). Heretofore the total number of deaths from these three causes has been listed under "other puerperal causes." Of the cities of 100,000 population in 1920, the highest rate for puerperal causes was for Memphis (16.0), followed by Nashville (14.7) and Birmingham (14.4). For accidents of pregnancy and for puerperal hemorrhage and other accidents of labor, Memphis again led with respective rates of 2.3 and 4.3 per thousand live births, while for puerperal albuminuria and convulsions, New Orleans had the highest rate (4.4). The city with the highest rate for puerperal septicemia was Nashville (9.0), followed by Memphis (6.1) and Akron and Birmingham (each 5.7). Cities that reached 100,000 population at the census of 1930 are included in the table and for these the highest rate (14.1) for all puerperal causes was for Jacksonville, Fla. The highest rate was that of Jacksonville, Fla. (2.7), for accidents of pregnancy; for puerperal hemorrhage and other accidents of labor Chattanooga was highest with a rate of 3.3; for puerperal septicemia Peoria had the highest rate, 8.9; Knoxville had the highest rate (4.0) from puerperal albuminuria and convulsions, and Somerville had the highest rate (1.2) for other puerperal causes.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 29, 1930.

An All-India Medical Council

The withdrawal of recognition of Indian medical degrees by the general medical council because of the refusal of Indian universities to allow inspection of their examinations was reported in The Journal, April 12, page 1156. The holding of an all-India conference for the maintenance of proper standards in provincial institutions for medical education has also been reported (August 9, p. 423). This conference of provincial and university representatives considered the creation of an all-India medical council for the purpose of maintaining a uniform standard of qualifications for the graduates of Indian universities and decided that the necessary steps should be taken without delay. The general medical council has expressed, by its president, Sir Donald Macalister, satisfaction that a solution of the vexed question of Indian medical standards, applicable to the whole of British India, should be practically envisaged by the government of India and that the responsibility for maintaining these standards, especially in relation to their extra-Indian aspects, should be assumed by a central Indian body. The council counts with confidence on the speedy establishment of a central board for India comparable with the medical boards or councils of other parts of the empire, to which it can refer for authoritative information on all questions of qualifications and standards. The council has received communications from India suggesting that, pending the establishment of the all-India Council, the degrees granted by the universities of Bombay and Rangoon should be recognized, but it has come to the conclusion that this would not be expedient or, indeed, just until the question can be dealt with as a whole, under conditions that would justify the council's guarantee of their sufficiency.

Experience of Birth Control Clinics

A meeting of medical officers of thirteen birth control clinics, who brought answers to a questionnaire previously circulated, relating to the failure of contraceptive methods, pathologic conditions, and hemorrhages observed in patients who had followed contraceptive methods for six months or more, was held in London. The information obtained was based on 6,322 cases. Among these there were 685 failures to prevent pregnancy, but of these only 95 were unaccountable; i. e., failure occurred though the prescribed technic had been properly carried out. The remaining 590 failures were traced to causes such as incomplete following of instructions, lapses from use of the method, deterioration of or faulty appliance, or other causes. In addition there was a group of 267 women who found the method impracticable for various reasons, such as esthetic dislike or discomfort to themselves or their husbands. An important observation was the entire absence of harmful results from following the instructions. The one case of pathologic effects occurred in a woman who wore the pessary continuously day and night whether there was any need or not. Only fifty complaints had been made by husbands. They mainly concerned the feeling of the anterior rim of the pessary and irritation of the penis by the lactic acid.

Accidents in Aviation

In the house of commons the undersecretary of state for air said, in reply to a question, that in the royal air force the number of deaths due to flying this year was sixty-two, an increase over last year's figure but practically the average for the same period in the preceding five years, when much less flying was done. The important point was the proportion of fatal accidents to the amount of flying done. For the period January-October, 1930, this is considerably lower than for any period from 1921 onward. A downward movement had thus been maintained, though not at a uniform rate. Of the sixty-two persons killed this year, thirty-five were in aircraft not fitted with slots or with slots not in operation, while fifty-four were supplied with parachutes. As regards safety devices, constant attention was given to the whole subject of the best means of improving the safety of flying and to the development of any devices that will do this. As a result there had been a progressive increase in the safety of flying.

Dame Mary Scharlieb is Dead

The death of Dame Mary Scharlieb, D.B.E., LL.D., M.D., M.S., at an advanced age removes a remarkable woman who entered the profession in middle life from humanitarian motives and became a skilful surgeon and the leader of her sex in the medical sphere. Mary Ann Suncomb Bird was born in 1845 near London. In 1865 she married a barrister, Mr. Scharlieb, and soon afterward accompanied him to Madras, where he practiced. She bore three children and helped her husband in the publication of law journals. She learned of the suffering of Hindu and Mohammedan women in childbirth because of the purdah system, which prevented aid from medical men. She was so affected that she determined to assist them by becoming a nurse at the lying-in hospital in Madras. She soon found that this was not enough and she entered with three other women the Madras Medical College, graduating in 1878. She went to England for further instruction, joining the London School of Medicine for Women, and in 1882 took the M.B. degree of the University of London with honors. She also attended a postgraduate course at Vienna. Returning to India in 1883, she was appointed lecturer on midwifery and gynecology at the Madras Medical College and accomplished a long cherished scheme to found a hospital for women. By 1887 the work had so told on her health that she had to return to England. In London she was appointed surgeon to the New Hospital for Women and subsequently was elected gynecologist to the Royal Free Hospital, being the first woman to hold a position on the visiting staff of a general hospital. She carried on a large consulting practice. She contributed the article on "Innocent Tumors of the Uterus" to the Encyclopaedia Medica and wrote on such subjects as "Welfare of the Expectant Mother," "How to Enlighten Children," and "Straight Talks to Women."

PARIS

(From Our Regular Correspondent)

Nov. 19, 1930.

The Congress of Otorhinolaryngology

The French Congress of Otorhinolaryngology met recently at Paris, at the Faculté de médecine, under the chairmanship of Dr. Caboche. The session was devoted to research on infection of the tonsils. The first official paper, presented by Worms and Le Mée, dealt with the problem of tonsillar foci viewed as the source of secondary infection. Acute articular rheumatism and chronic infectious rheumatism, bronchopulmonary disorders in children, and even appendicitis, may be the consequences of an infection due to a latent tonsillar focus, not to speak of possibly mycoses, tuberculosis and even cancer. The most interesting feature of the paper was Dr. Le Mée's description of the method he employs to discover experimentally the latent foci—what he terms "the tonsillar test." In applying massage, cupping or diathermy to the tonsil, a marked leukopenia is often observed, determined by the enumeration of the leukocytes in the blood before and after the maneuver—at the end of a quarter of an hour, an hour and a half and three hours and a half after the latter. The conclusion is that tonsillectomy is indicated whenever infectious disorders can be proved to be associated with a latent tonsillar focus. The second paper, that of Jacques of Nancy and J. Molinié of Marseilles, took up the indications and the technic of tonsillectomy; their conclusion is frankly in favor of total extra-capsular tonsillectomy. The nature of the discussion that followed revealed the advocates of total tonsillectomy and those who regard the tonsil as a useful organ that cannot be removed, other than partially, without doing damage to the organism. The most frank defender of the latter opinion was Professor Moure of Bordeaux, who stated that, thus far, his patients who had been treated according to the French method were in good health. A number of nonofficial communications were presented. Mr. Rendu of Lyons declared that local anesthesia was perfectly applicable to children, in spite of opinions expressed to the contrary. Mr. Dandin-Clavaud of Dunkirk recommended a procedure for the evacuation of the tonsils after electrocoagulation. Mr. Proby of Lyons spoke in favor of the Sluder-Ballenger method of tonsillectomy. Rebattu and Charachon of Lyons gave the results of their research on the bacteriology of the tonsil. Professor Canestro of Gênes discussed the value of periarterial sympathectomy in the treatment of pain in tuberculous laryngitis. During the congress, Dr. Chevalier Jackson of Philadelphia gave a lecture on esophagoscopy and bronchoscopy. In connection with the congress, a commemorative bust of Dr. Lermoyez was set up in the Hôpital St. Antoine, in the service that he founded and of which he was for a long time the director. The officers elected for the ensuing year were: president, Dr. Gault, Dijon; vice president, Dr. Hautant, Paris. The chief topic on the program will be: "The Indications and the Technic of Bronchoscopy." The official paper will be presented by André Bloch and Soulas.

International Congress of Orthopedic Surgery

A new international association, founded last year, held recently in Paris its first session. The first International Congress of Orthopedic Surgery convened under the chairmanship of Sir Robert Jones of Liverpool, assisted by Mr. Gocht of Berlin and Mr. Putti of Bologna. Twelve countries sent delegates. The first topic was the "Treatment of Congenital Luxation of the Hip After the Age of Fifteen" (papers by Professor Kreuz of Berlin, Dr. Dickson of Kansas City, Mr. H. A. T. Fairbanks of London, and Professor Putti). The second topic on the program was "Wrist Fracture" (papers by Dr. Albert Mouchet of Paris and Dr. Murk Jansen). Professors Ombrédanne and Mathieu performed several operations. The next meeting of the society will be held at London in 1933. The elected officers are: Mr. Nové-Josserand of Lyons, president; Mr. Murk Jansen, Leyden, vice president; Mr. Delchef of Brussels, general secretary; Mr. Maffei of Brussels, treasurer. The chief topic on the program will be "The Articular Mechanism in the Treatment of Coxalgia."

The International Professional Association of Physicians

The season of congresses, which comprised the month of October and part of the month of November, has come to a close in Paris. One of the last conventions was that of the general council of the Association professionnelle internationale des médecins. The previous session was held in Berlin. The fifth assembly was held in Paris in October, in the Hôtel de la confédération des syndicats médicaux, under the chairmanship of Dr. Rystedt, national correspondent of Sweden, assisted by the general secretary of the association, Dr. F. Decourt, national correspondent for France. Of the twenty-nine countries that are adherents of the association, seventeen were represented by their national correspondents, all of them presidents or secretaries of their national professional group; these were: Austria, Belgium, Bulgaria, Denmark, Danzig, France, Germany, Great Britain, Hungary, Jugoslavia, Latvia, Luxemburg, Netherlands, Norway, Poland, Sweden and Switzerland. The chief topics on the program were: "Organization of the Antituberculosis Crusade in the Various Countries," Dr. Decourt, France; "Representation of the Medical Profession in Governmental and Regional Organizations," Dr. Cox, Great Britain; "Insurance and Charitable Aid in the Medical Profession for the Physician and His Family," Dr. Schaeftgen (Luxemburg). In addition, the representatives of each country gave an account of the present state of health insurance in their own country. Dr. Decourt then discussed the question of the practical collaboration of the Association professionnelle internationale des médecins with the Confédération internationale des travailleurs intellectuels. Following the presentation of the subject by Mr. Gallie, general secretary of the confederation, the collaboration was unanimously agreed on. The assembly decided that the inquiries of the association for 1931 shall deal with the following two questions: "Health Insurance in 1931 in the Various Countries"; "The Organization of the Crusade Against Venereal Disease in the Various Countries." The next session of the general council of the association will be held in Budapest in 1931, under the chairmanship of Dr. Narbeshuber (Austria).

Diplomas Issued by the Faculties of Medicine

During the school year ended last July, the faculties of medicine of France issued doctor diplomas in medicine to the number of 1,172, the distribution of which among the several faculties is as follows:

Faculties of Medicine	Government Diplomas	University Diplomas	Total
Algiers	23	...	23
Beirut (Syria)	18	...	18
Bordeaux	151	5	156
Lille	50	1	51
Lyons	128	10	138
Marseilles	3	...	3
Montpellier	72	17	89
Nancy	39	4	43
Paris	477	71	548
Strasbourg	35	8	43
Toulouse	56	4	60
	1,052	120	1,172

It is announced also that the number of new students enrolled in the Faculté de médecine has increased still further, in spite of the circular advocating retrenchment, sent by the medical syndicates to the administrations of the lycées, or secondary schools. In the Paris faculty of medicine there are, this year, 6,072 enrolled, 4,095 of whom are French and 1,977 are foreigners, or an increase of 96 Frenchmen and 221 foreigners over last year.

American Aid for Establishments in France

A delegation from the United States called recently on the prefect of the Seine and informed him of a gift of one million dollars made to the city of Paris for the erection of a clinic for the treatment of diseases of the mouth, teeth and throat, where children in the public schools will receive free treatment up to the age of 16. The establishment will resemble that erected in Rochester, N. Y. Similar institutions will be erected in Rome and in London.

The Hôpital Stell, founded at Rueil, near Paris, by Mr. Edward Tuck, has been greatly enlarged as the result of an additional large donation received from the founder. Until her death, Mrs. Edward Tuck devoted much of her time and energy to this hospital, which was originally a private institution but which her husband donated to the department of Seine-et-Oise, together with a perpetual income to assure its adequate functioning. With the aid of the new donation, the hospital has been able to double its bed capacity, which was previously twenty-seven. It is now supplied with the most modern equipment. The inauguration of the new pavilions was the occasion of an official ceremony, at which the prefect of the department presided.

A Rockefeller institute has recently been established at Montpellier for the study of undulant fever.

ITALY

(From Our Regular Correspondent)

Oct. 15, 1930.

International Conference on Tuberculosis

At the seventh International Conference on Tuberculosis, held in Oslo, Italy was represented by a delegation comprising Prof. Raffaele Paolucci of the University of Bari, chairman, and Senator Maragliano of Genoa and Professor Morelli, deputy, director of the Clinica di tisiologica in Rome.

VACCINATION AGAINST TUBERCULOSIS

Professor Maragliano, who presented an official paper on preventive vaccination against tuberculosis, affirmed that vaccination to protect man against infection with the Koch bacillus is possible, and that it was first accomplished in Italy thirty years ago. Numerous types of vaccine have been proposed but the two most used are the French B C G vaccine and the Italian vaccine consisting of killed bacilli. The B C G vaccine has been applied to more than 250,000 children and has given results that, for the time being at least, must be regarded as evidence of its immunizing potency. The untoward results observed recently in Germany do not justify adverse criticism of the vaccine itself. The Italian vaccine has been in use for many years and has given encouraging results, as regards both its immunizing potency and its absolute harmlessness. It is being used more and more extensively in Italy. It should be admitted that there are many different antituberculosis vaccines; one should not overemphasize one type.

Professor Calmette recognized the fact that to Maragliano belongs the merit of having conceived the idea of preventive vaccination against tuberculosis and for having put it into practical execution, but he insisted on the view that, in order to obtain an effective defense, the presence of living bacilli is needed.

In reply, Maragliano brought out that the B C G vaccine has a limited and short life when inoculated into the human organism and that, as a matter of fact, one is dealing finally, in this case as well, with killed bacilli.

THORACOPLASTY

Professor Carpi of Milan presented an official communication on thoracoplasty. The speaker explained the new conceptions of elective pulmonary collapse, which have made possible the application of simultaneous bilateral pneumothorax, and which in the field of surgery justify interventions of a less extensive nature, such as partial thoracoplasty, apicolysis and phrenicotomy. Professor Malan of Turin reported a series of thirty cases of tuberculosis in which he performed a thoracoplastic operation, at first by the Wilms method and later by the Sauerbruch method. In the first cases in which he operated, general anesthesia was, if only indirectly, a frequent cause of death; the use of local anesthesia led to better results. Thoracoplasty may be recommended to patients when, after a period of sanatorium treatment, pneumothorax is inapplicable or phrenicotomy is adjudged insufficient. Contraindications are found in a gradual improvement in general health, an evolutional exudative process, a heart lacking resistance, a focus of infection in the opposite lung, and visceral tuberculosis. Certain rebellious cases of hemoptysis constitute a frank indication for thoracoplasty. However, before one proceeds with this grave intervention, therapeutic pneumothorax should always be tried first.

The Medical Convention at Bari

Physicians of various regions of southern Italy held recently a convention at Bari. The chairman, Prof. Ermanno Fioretti, described to the conventionists the activities of the Sanità pubblica italiana and the nature of the principal improvements. The sanitary work has been notably decentralized in recent years and many duties have been transferred from the ministry to the provinces, such as the supervision of the laboratories of hygiene and prophylaxis, the antituberculosis services, the general administration of quinine, and the antirabies treatment. Special courses of treatment are given to build up a defense against avoidable infectious diseases. For the promotion of odontologic studies, a six-year course has been organized at the University of Rome. Insurance against tuberculosis is now required of all classes of workmen. It applies to more than eight million workmen. The number of tuberculous patients at present is about 80,000. The cost of sanatorium aid is $26,250,000, in addition to the annual expenditure of $15,750,000 for the army. For protection against cancer, diagnostic and therapeutic centers have been established. Also courses of practical instruction for a specialized medical personnel have been organized. Numerous other provisions have been made for the protection of public health. Professor Quarante of Bari asked that special insurance measures be created for the benefit of physicians who are serving in institutions that admit tuberculous patients. The next regional convention of physicians will be held at Venice, for the benefit of the health officers of the Tre Venezie.

Antidiphtheria Vaccination

The minister of the interior has issued instructions to the prefects providing for a more intense and better organized prophylactic action against diphtheria infection to take the form of vaccination with anatoxin. The public health service has pointed out that in certain provinces the number of children vaccinated is small, owing to insufficient publicity on the part of the health officers. Vaccination is not obligatory, but the need of it, in the opinion of the minister, should be brought to the attention of the public.

The New Public Health Institute in Rome

The erection of the new Istituto di sanità pubblica in Rome, in the vicinity of the Policlinico, by the Italian government, toward which the Rockefeller Foundation made a large contribution, was recently begun. The institute will be under the direct control of the public health service and will have functions entirely distinct from those of the university institutes of hygiene. Its chief purpose will be the creation of a school for the education and training of sanitary personnel; it will serve as an aid to the public health service in the country in general, in the provinces and in the communes. The present laboratories of the public health service and of the Scuola superiore di malariologia will be reorganized, with new equipment, and will be located in the new institute.

CAPE TOWN

(From Our Regular Correspondent)

Nov. 8, 1930.

Mentally Defective Persons in the Union of South Africa

The investigation of the incidence of mental defectiveness, initiated in 1915 by Dr. J. M. Moll of Pretoria, has been carried on with comparatively little enthusiasm, since his death, which robbed South Africa of an earnest investigator. Educated in the school of Winckler, whose first assistant he had been for many years, Moll came to this country ill with pulmonary phthisis. Like others, he found health in the uplands of the Karroo and accepted an assistantship at a government hospital for the insane, where for years he engaged in routine administrative work. In 1915 he started practice as a specialist in mental diseases at Johannesburg, and the Transvaal education department gave him a roving commission to investigate the extent of mental defectiveness in the schools. His first report, in 1917, showed that in the Transvaal schools there was an average of 0.8 per cent of mentally defective children, a percentage that agreed fairly closely with the average percentage of 1 in 300 which he made for the whole white population. Since Moll's death, from Bright's disease, in 1920, the tendency has been to entrust much of the work of determining mental values to psychologists, whose evaluations are often vitiated by obvious defects of a physical nature that could be demonstrated in the children examined. In one case a lay examiner recorded a proportion of 7.4 mentally defective children, but on further investigation it was found that 76 per cent of the children suffered from chronic malaria, had a high fatigue index, and were for the most part unilingual and did not understand the tests used. Similar mistakes are frequently made in testing natives. More recent investigations appear to show that the aboriginal Bantu has an average mental quotient not far inferior to that of the average South African of white parentage, and that the percentage of mental defectives in native schools is certainly not higher than it is in European schools. At present an investigation is being made into the mental quotients of poor white children, but the work is not being done by a team comprising a psychiatrist, a psychologist and a pediatrician, and the results will probably not be of greater value than those published more than ten years ago by Moll.

Public attention has been drawn to mental deficiency by the discussion of the advantages of sterilization of the unfit. There is increasing juvenile criminality in the Union, and in these days of financial depression many taxpayers believe that too much is being paid for prison and police service. For all that the proposal to introduce legislation, on the American model, to enable the manifestly antisocial and unfit human derelicts to be sterilized, has so far found little favor with the general public. At present such sterilization is a crime, and legal opinion is unanimous that even consent on the part of the patient cannot make it justifiable. The local Branch of the Medical Association of South Africa had a combined meeting with the bar at which this matter was discussed. There has been a strong movement to induce the government to support a bill to legalize sterilization under proper precautions, but it seems clear that public opinion is not ready for such a step.

Racial Admixtures

One of the most interesting investigations that have been made during the past few years in this country has been completed by a scientist who in the course of a busy practice as a pathologist and bacteriologist, who incidentally has to prepare his own culture mediums and do practically everything single handed in his private laboratory, finds time to devote attention to purely scientific questions. This is an investigation into the blood groups of the South African Dutch, undertaken by Dr. A. Pijper of Pretoria. His results have been published in the Proceedings of the Koninklijke Akademie van Wetenschappen te Amsterdam (**32,** number 9, 1929). Some time ago he published, in the Transactions of the Royal Society of South Africa (**18,** part 4) a preliminary investigation which showed that the aboriginal Bantu have a blood index slightly higher than that of the American Negro. The work of Henderson and Lewis (The Journal, Oct. 21, 1922, p. 1422) stimulated him to undertake similar research here. So far as the Bantu are concerned he found that their blood index was 1.3. Previous work by Harvey Pirie, who had examined a small number of mine natives, had given a slightly higher index, while Mueller, working with West African natives, and Bruynoghe and Walravens, working with Belgian Congo natives had all found a blood index below 0.9. These figures seem to establish the fact that the west African Negroes have an index below that now found in their descendants in America, whose index is given as 1.3, and that the South African Bantu has even a slightly higher index. Dr. Pijper remarks: "Apart from a few historical curiosities there is no evidence at all that there ever has been an infusion of white blood into the Bantu. . . . The Bantu are the only native race of Africa of which we know that it has such a curiously high index. . . . The current belief about the origin of the Bantu is that they are of Negro origin with perhaps a slight admixture of Hamitic blood. My figures of the distribution of the blood groups make such views untenable. Whatever may have been the exact index of this Hamitic blood, it will not have been much higher than 1.5. A large infusion of white blood with an index of at least 3 has only succeeded in raising the original Negro index of 0.8 to 1.3 in America. It is therefore inconceivable that a slight admixture of Hamitic blood with an index of about 1.5 would have raised the Negro index to 1.3. The facts definitely point the other way; the Bantu have to be looked upon as direct descendants of the Hamitic race, with perhaps a very slight admixture of Negro blood."

Dr. Pijper, working with 596 descendants of Dutch families, the ancestors of whom came into the country before 1795, found that the blood index among this group is lower than that of the English and Hollanders, approaches that of the French, and equals that of the population of Berlin. The distribution of the blood groups in the South African Dutch, he declares, is of the western European type. But that distribution as a whole differs widely from that of the Germans and makes the South African Dutch resemble much more the Hollanders and the French. He found a blood index of 2.9 in the selected group, with a rather low incidence of the A group and the B group incidence somewhat high.

BERLIN

(From Our Regular Correspondent)

Nov. 24, 1930.

The Infant Deaths in Lübeck

According to a recent announcement of the ministry of the interior, the investigations carried on by Prof. Ludwig Lange in the federal bureau of health have led to further results. The periodic fluctuations in the epidemiologic course of the cases have persisted. The total number of deaths to date is seventy-three, the last occurring November 4, after an interval of seven and a half weeks. The examination of the B C G cultures from Lübeck is about completed. Further research has confirmed that the B C G cultures implanted in Lübeck in firm culture mediums about the middle of March and during the second half of April, 1930, did not contain virulent tubercle bacilli. On the other hand, additional evidence has been secured to show that the culture of Deycke (implanted, April 17), which was derived from a guinea-pig inoculated with a supposedly pure B C G emulsion, was a culture of virulent human tubercle bacilli. Another culture, which was obtained from a guinea-pig inoculated with a further B C G emulsion (also supposed to be pure), showed likewise high virulence for guinea-pigs. The rabbit experiments are not yet completed. In the examination of the remnants of four different culture emulsions (vaccine material) used in Lübeck for the treatment of children and sent in to the federal bureau of health subsequent to the deaths of the first infants, the cultivation experiments with two of the vaccine remnants were negative. From the remnant of the third vaccine substance, which had been given out, February 26, a culture of tubercle bacilli highly virulent for guinea-pigs was grown. The experiments on rabbits are not yet completed. In the remnant of the fourth vaccine substance, given out at the end of April, only avirulent B C G bacilli and no virulent tubercle bacilli have been found. With the exception of two instances, cultures of human tubercle bacilli have been secured from portions of the organs of deceased infants obtained at necropsy and inoculated into guinea-pigs. One of the two exceptions concerned an infant who had died forty-seven days after the vaccination (but from another cause and not from progressive tuberculosis) and from whose organs a pure B C G culture had been grown, while the second exception was another infant who had died ninety-one days after the vaccination and from whose organs cultures were secured in which in all probability (the researches in this case are not quite completed) likewise B C G cultures were involved. Moreover, no evidence has yet been obtained for the view that the morbific and fatal effects of so large a portion of the vaccine material administered to infants in Lübeck were due to a biologic transformation of the B C G cultures employed there. The final report of the investigating committee will be placed in the hands of the federal health council some time in November.

Opinions on the Working Capacity of Man at the Age of Thirty-Five

In taking up the discussion of the question as to whether or not the working capacity of man is diminished on reaching age 35, the *Deutsches Volksblatt,* published in Stuttgart, cited opinions of economic experts, parliamentary representatives and medical men. Prof. Fritz Strassmann of Berlin expressed himself as follows: "During my nearly forty years of activity as a medicolegalist, I have had occasion to issue many certificates concerning earning capacity, and my observations during that period do not lend the slightest support to the view that the working capacity of man undergoes a diminution by the time he reaches age 35." Dr. Grotjahn, occupant of a chair in social hygiene, gave this opinion: "That the physical capacity of a working human being on reaching age 35 is diminished to such an extent as to lessen his occupational fitness must be denied from both the medical and the hygienic point of view. There are few employments, such, for example, as that of the hard-coal miner, who works by artificial light and under the most disagreeable conditions, of which that might possibly be said. But even the coal miner does not usually begin to show a reduction of his physical capacity until about ten years later than the age mentioned. In the case of employees as a class, if they are in normal health, there is no reduction of physical capacity before the age of 60 is reached. The custom of many industrial establishments and commercial houses of giving absolute preference to young persons in selecting new employees is a regrettable lack of insight."

The Therapeutic Advantages of Seaside Resorts

At the session of the Deutsche Gesellschaft für Meeresheilkunde, which was held in Westerland auf Sylt, Miethke of Kiel referred in his paper to the fact that not only the milk of animals but also human milk, in the North Frisian Islands and on the coasts of the North and the Baltic seas, contain a much larger amount of iodine than in the regions of the interior, the excess amounting sometimes to 200 per cent of the normal amount. The drinking water likewise shows in places near the sea a higher iodine content. An exceptionally high percentage of iodine is found in the snow of the North Frisian Islands. In sea climates it is likely that the iodine content is therapeutically an important factor. Peat and moor in the vicinity of the coast contain large quantities of iodine, though the sands of the sea have very little. In regions near the sea, the eliminations of the kidneys and of the skin have been found to contain larger quantities of iodine than are found in the interior. These observations are important for the regional consideration of thyreotoxicoses.

Professor St. Engel of Dortmund spoke on "Maritime Medicine in Relation to the Diseases of Young Children." In the past there has been a tendency to neglect young children in connection with considerations pertaining to balneology. Infants, it is true, react slowly to sea climate. If young children are vasolabile or neurotic, their reactions in a maritime climate are unfavorable; otherwise they are good. Not many observations, however, have been made, for the reason that too few young children are sent to the seashore. The conditions of exudative diathesis in young children are best adapted for maritime treatment. In infancy exudative diathesis expresses itself more by its inflammatory nature; in young children more by its lymphatic manifestations, and in older children rather by its neurotic symptoms. Maritime treatment should, however, extend over a considerable period. Of children with rachitis, those who show a tendency to bronchial catarrh are most likely to receive benefit from a sojourn at the seaside. Children with asthma are benefited by climatic treatment at the seaside. The most important disease in young children in which seaside treatment is beneficial is tuberculosis, which expresses itself in the form of tuberculosis of the bronchial glands, meningitis and miliary tuberculosis. There is no specific treatment for these forms of tuberculosis, but the sea-bath treatment shows good results. It is not difficult to discover whether or not a child is tuberculous, if the Pirquet procedure is employed; it is, however, difficult to ascertain which cases are active, especially as the roentgenologic diagnosis and the erythrocyte sedimentatation test cannot be depended on.

Professor van der Reis of Danzig spoke on "Maritime Medicine and the Diseases of Advanced Age." Sea climates in their effects may be classed among the nonspecific remedies that produce a changed reactivity and are of great therapeutic value. The customary classification does not make sufficient allowances for the wide therapeutic differences between the climate that characterizes the beach, the dunes that lie back of the beach and the woods that border on the sea. Within a narrow area there is thus a transition from a stimulative climate to a relatively unstimulative one. The sojourn at the seaside acts through an ensemble of effects, including those of the pure atmosphere and the sea-baths. The chief point of attack of the stimulative effects of a stay on the seashore is the skin, which, when influenced, acts on the whole organism. The physiologic effects include changes in the capillary reactions of the skin, an increase of oxygen consumption, influence exerted on the mineral metabolism, and action on the blood and the circulatory organs and the functioning of the respiratory tracts and digestive organs. The indications for seaside treatment in internal diseases comprise above all "common colds" and diseases of the respiratory organs. A precondition is a careful selection of cases and precise observation of the susceptibility to stimulation and the effects of stimulation. Secondary anemias are favorably influenced by the seaside climate but pernicious anemia is not favorably affected. Heart patients may go to the seashore only in a compensated stage; the same rule applies to arteriosclerosis and high blood pressure. The assertion that neurotic patients must never go to the seaside is unfounded; but a careful selection of cases is requisite. Especial value attaches to the treatment of subacute rheumatic disorders and the interval stage, at the seaside. There is an urgent need of the creation of more therapeutic institutions by the sea.

Dr. F. Kirchberg of Berlin discussed the subject of "Gymnastic Exercises at the Seaside." The results secured with various forms of sport and gymnastic exercises in connection with sea-baths are excellent. They apply more particularly to an improvement in respiration and to an expansion of the chest. The hardening effects of gymnastics in the nude, by the seaside, are stressed. The hardening process makes possible a sojourn by the sea during cold weather—under certain conditions, even in the middle of winter. Gymnastic exercises serve to strengthen the musculature, whereas lying on the beach promotes an ontake of fat.

Marriages

EDWARD J. VAN LIERE to Miss Alice Evelyn Hartley, both of Morgantown, W. Va., in Uniontown, Pa., November 10.

JOHN W. JAMES, Saginaw, Mich., to Miss Helen Loraine Collaton of Toronto, Ont., Canada, November 5.

FRED LORD VARNEY, Monson, Maine, to Miss Laura J. Best of West Baldwin, November 27.

LEROY GOODMAN to Miss Marie Mulvey, both of Yukon, Okla., November 9.

Deaths

William Bedford Craig, Denver; St. Louis Medical College, 1875; Bellevue Hospital Medical College, New York, 1876; member of the Colorado State Medical Society, and the American College of Surgeons; emeritus professor of surgery, University of Colorado School of Medicine; on the staffs of St. Luke's Hospital, St. Joseph's Hospital, Mercy Hospital, Presbyterian Hospital, Children's Hospital, St. Anthony's Hospital and the Denver General Hospital; aged 75; died, November 27.

Robert Courtenay Loving ⊕ Colonel, U. S. Army, retired, Philadelphia; Medico-Chirurgical College of Philadelphia, 1902; entered the army as an assistant surgeon in 1903 and was promoted through the various grades to that of lieutenant colonel in 1917; served during the World War; retired for disability in line of duty in 1922, with the rank of lieutenant colonel; promoted colonel retired, under the Act of June 21, 1930; aged 52; died, November 7.

John Welch Boyce ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1892; served during the World War; member of the American College of Physicians; aged 59; associate editor of the *Pittsburgh Medical Bulletin;* on the staffs of the Pittsburgh City Home and Hospitals, Mayview, Western Pennsylvania Hospital, Eye and Ear Hospital and the Southside Hospital, where he died, November 23, as the result of a gangrenous gallbladder.

Oliver Edward Janney, Baltimore; University of Maryland School of Medicine, Baltimore, 1881; Hahnemann Medical College of Philadelphia, 1882; member of the Medical and Chirurgical Faculty of Maryland; at one time professor of practice and clinical pediatrics in the Southern Homeopathic Medical College; formerly on the staff of the Southern Homeopathic Hospital; aged 74; died, November 17, of pneumonia.

Blair Dabney Taylor ⊕ Colonel, U. S. Army, retired, Atlanta, Ga.; University of Virginia Department of Medicine, Charlottesville, 1869; Medical Department of the University of the City of New York, 1870; entered the army as an assistant surgeon in 1875; advanced through the various grades to that of colonel in 1908; retired in 1911 at his own request after thirty years' service; aged 82; died, October 29.

Myron Everett Fisher ⊕ Delevan, N. Y.; University of Buffalo School of Medicine, 1894; served during the World War; formerly member of the state legislature; member of the county board of health; for many years health officer of Delevan and Yorkshire; aged 65; died, November 29, as the result of injuries received in an automobile accident.

Marie S. Schmidt ⊕ Sheridan, Ill.; Northwestern University Woman's Medical School, Chicago, 1900; at one time clinical assistant in gynecology, Rush Medical College, Chicago; formerly on the staff of the Mary Thompson Hospital, Chicago; aged 67; died, November 15, of heart disease.

George Swan Mooney, Yonkers, N. Y.; Medical Department of Columbia College, New York, 1895; member of the Medical Society of the State of New York and the American College of Surgeons; on the staff of St. Joseph's Hospital; aged 74; died, October 17, of heart disease.

Gove Saulsbury Harrington, New York; Hahnemann Medical College and Hospital of Philadelphia, 1892; member of the American College of Surgeons; on the staffs of the Metropolitan and Broad Street hospitals; aged 63; died, November 25, of heart disease.

Edward A. Crokat, San Diego, Calif.; University of Manitoba Faculty of Medicine, Winnipeg, Man., Canada, 1894; member of the California Medical Association; aged 64; died, October 20, in the Quintard Hospital, of myocarditis and valvular heart disease.

Lurin Patrick Macklin, St. Louis; Washington University School of Medicine, St. Louis, 1909; member of the Missouri State Medical Association; member of the board of education; aged 43; died, October 15, of cerebral embolism and chronic endocarditis.

Frank Gerald Bishop, Ebensburg, Pa.; Temple University School of Medicine, Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; aged 60; died, November 7, in Johnstown, of an injury received in an automobile accident.

Harry Charles Johnson ⊕ Logansport, Ind.; Chicago Homeopathic Medical College, 1904; served during the World War; president and for many years member of the city board of health; aged 50; died, November 30, of pernicious anemia.

Joseph Martin Bennett, Providence, R. I.; University of Pennsylvania School of Medicine, Philadelphia, 1892; member of the Rhode Island Medical Society; formerly chairman of the state board of health; aged 66; died, in November.

Alexander R. Morton, Morton, Pa.; Jefferson Medical College of Philadelphia, 1886; past president of the Delaware County Medical Society; aged 67; died, November 8, in the Lankenau Hospital, Philadelphia, of gastric ulcer.

Cornelius S. Franckle, Millville, N. J.; College of Physicians and Surgeons, Baltimore, 1900; member of the Medical Society of New Jersey; aged 52; died, November 1, in the Jefferson Hospital, Philadelphia, of heart disease.

Allan Walker Urmson, New Castle, Pa.; Jefferson Medical College of Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; on the staff of the New Castle Hospital; aged 59; died, November 12.

Pugh Ulpian Brown, Troy, Ala.; Medical Department of the Tulane University of Louisiana, New Orleans, 1895; member of the Medical Association of the State of Alabama; aged 61; died, November 24, in a hospital at Mobile.

Mary Evelyn D'Aloret Johnston, Hamilton, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1917; on the staff of the Mountain Sanatorium; aged 38; died, September 23, in the Toronto General Hospital.

James John Benson, West New York, N. J.; Baltimore University School of Medicine, 1899; member of the Medical Society of New Jersey; formerly member of the school board; aged 50; died, November 9, of heart disease.

August Elof Johnson ⊕ Minneapolis; Medical Department of Hamline University, Minneapolis, 1906; aged 61; died, October 19, on the S. S. *Europa* while returning to the United States from Sweden, of coronary sclerosis.

Thomas James McGovern, Braintree, Mass.; Tufts College Medical School, Boston, 1927; member of the Massachusetts Medical Society; on the staff of the Norfolk County Hospital; aged 34; died, November 13.

Herman Harvey Albers ⊕ Allenton, Wis.; Rush Medical College, Chicago, 1891; past president of the Washington-Ozaukee Counties Medical Society; aged 64; died suddenly, October 22, of cerebral hemorrhage.

Robert W. Alton, Portland, Mich.; University of Michigan Medical School, Ann Arbor, 1878; member of the Michigan State Medical Society; aged 76; died, November 9, in a hospital in Ann Arbor, of pneumonia.

George Otto Cosby, Elizabethtown, Ind.; Medical College of Ohio; Cincinnati, 1881; member of the Indiana State Medical Association; aged 77; died, November 9, in the Methodist Episcopal Hospital, Indianapolis.

Charles Wayman Wassmann, Bellaire, Ohio; Jefferson Medical College of Philadelphia, 1923; member of the Ohio State Medical Association; aged 31; died, October 30, in a sanatorium at Asheville, N. C.

Henry Fuller Curtis ⊕ Somerville, Mass.; Harvard University Medical School, Boston, 1891; member of the school board; on the staff of the Somerville Hospital; aged 66; died, October 29, in Framingham.

George Newton Mealy, Newton Falls, Ohio; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1882; aged 85; died suddenly, November 28, in Cleveland.

Daniel Leo McCormick, Newark, N. J.; Dartmouth Medical School, Hanover, N. H., 1896; member of the Medical Society of New Jersey; aged 56; was killed, November 27, in an automobile accident.

William Colin ⊕ New York; Medical Department of the University of the City of New York, 1898; on the staff of the Harlem Hospital; aged 54; died suddenly, November 22, of cerebral hemorrhage.

Joseph Armstrong Nevin ⊕ Jersey City, N. J.; New York Homeopathic Medical College and Hospital, 1906; medical inspector for the city public schools; aged 51; died, November 15, of heart disease.

Harold Francis Hope Eberts, Westmount, Que., Canada; McGill University Faculty of Medicine, Montreal, 1915; aged 40; was found dead in November, in his garage, of carbon monoxide poisoning.

Manley Alfred Davis, Gadsden, Ala.; Birmingham Medical College, 1911; member of the Medical Association of the

State of Alabama; aged 45; died, November 1, in a local hospital, of pneumonia.

Curtis Oliver Falk ⊕ Eureka, Calif.; Cooper Medical College, San Francisco, 1897; member of the American College of Surgeons; aged 54; died, October 19, in St. Joseph's Hospital, of sarcoma of the right femur and pneumonia.

Nathan C. Wallace, Dover, Pa.; Jefferson Medical College of Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; aged 75; died, October 12, of injuries received in an automobile accident.

Charles Francis Duchein, Baton Rouge, La.; University of Nashville (Tenn.) Medical Department, 1899; member of the Louisiana State Medical Society; aged 55; died, October 28, of pneumonia.

Walter Scott Brainerd, Haverhill, Mass.; University of Vermont College of Medicine, Burlington, 1883; member of the Massachusetts Medical Society; aged 71; died, November 13, of heart disease.

John B. Leffingwell, Bradenton, Fla.; St. Louis Medical College, 1880; member of the Florida Medical Association; formerly member of the county board of health; aged 76; died, November 19.

Maxwell J. Davis, Mansfield, Ohio; Ohio Medical University, Columbus, 1897; member of the Ohio State Medical Association; formerly city health commissioner; aged 67; died, November 26.

Robert O. Chambers, Centerton, Ark.; Homeopathic Medical College of Missouri, St. Louis, 1877; Barnes Medical College, St. Louis, 1894; aged 77; died, October 30, of chronic endocarditis.

Francis James Conroy ⊕ Grand Rapids, Mich.; University of Illinois College of Medicine, Chicago, 1910; served during the World War; aged 45; died, in November, of heart disease.

Frank Pierce Gardner ⊕ Seattle; Western Pennsylvania Medical College, Pittsburgh, 1896; served during the World War; aged 61; died, September 29, of cerebral hemorrhage.

George H. Boehmer ⊕ Sandusky, Ohio; Jefferson Medical College of Philadelphia, 1897; on the staff of the Good Samaritan Hospital; aged 58; died, November 27, of heart disease.

Robley Dunglison Blount ⊕ Valparaiso, Ind.; Medical College of Indiana, Indianapolis, 1889; served during the World War; aged 62; died suddenly, November 13, of heart disease.

John Allison Darrow, Erie, Pa.; Syracuse University School of Medicine, 1910; member of the Medical Society of the State of Pennsylvania; aged 48; died, July 22, of pneumonia.

Nelson Clifton Bissell, Dos Palos, Calif.; Cooper Medical College, San Francisco, 1904; aged 60; died, November 1, in the Letterman Hospital, San Francisco, of arteriosclerosis.

Elgin Kossuth Leake, Collierville, Tenn.; University of Virginia Department of Medicine, Charlottesville, 1872; for many years mayor of Collierville; aged 80; died, November 11.

Robert Marvin Bennett ⊕ Amarillo, Texas; Kentucky University Medical Department, Louisville, 1903; aged 56; died, October 10, in St. Luke's Hospital, Kansas City, Mo.

Henry F. Risch ⊕ Brooklyn; Bellevue Hospital Medical College, New York, 1879; aged 78; died, November 26, in the United Israel-Zion Hospital, of cerebral hemorrhage.

Frank Benjamin Golley ⊕ Milwaukee; University of Michigan Medical School, Ann Arbor, 1878; Bellevue Hospital Medical College, 1879; aged 74; died, November 30.

Francis Asbury Webb, Calvert, Ala.; Medical College of Alabama, Mobile, 1881; member of the Medical Association of the State of Alabama; aged 70; died, October 22.

John M. Stone, Laredo, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; member of the Missouri State Medical Association; aged 81; died, September 18.

Francis Homer Blackman, Geneva, Ill.; Chicago Medical College, 1870; aged 84; died, November 8, at the Community Hospital, of myocarditis and acute prostatitis.

Franklin Pierce Boatner, Potts Camp, Miss.; University of Louisville (Ky.) School of Medicine, 1891; aged 78; died, September 20, in a hospital in New Albany.

Lyston H. D. Pierce, St. Petersburg, Fla.; Starling Medical College, Columbus, 1888; member of the Florida Medical Association; aged 69; died, November 4.

William Joseph Holland ⊕ Malden, Mass.; Georgetown University School of Medicine, Washington, D. C., 1903; aged 56; died, November 20, of pneumonia.

Nicholas J. Shields ⊕ San Luis Obispo, Calif.; Baltimore Medical College, 1898; on the staff of the Mountain View Hospital; aged 55; died, October 10.

Bert G. Jewett, Portland, Maine; Baltimore University School of Medicine, 1896; member of the Maine Medical Association; aged 57; died, September 4.

La Forest Almond Shattuck, Leesburg, Fla.; Eclectic Medical College of the City of New York, 1869; aged 84; died, July 6, in Ocala, of heart disease.

Theodore John Bertrand Meury, Saranac Lake, N. Y.; University and Bellevue Hospital Medical College, New York, 1912; aged 43; died, November 9.

Andrew Norris, Centerville, Tenn.; University of Nashville Medical Department, 1860; Confederate veteran; aged 92; died, November 10, in Nashville.

John Joseph O'Sullivan, New York; Medical Department of Columbia College, New York, 1894; aged 65; died suddenly, November 28, of heart disease.

Mary Leola Carrico ⊕ Danville, Ill.; Rush Medical College, Chicago, 1916; aged 37; was found dead in bed, November 16, of cerebral hemorrhage.

John E. Toole, Bainbridge, Ga.; College of Physicians and Surgeons, Baltimore, 1889; formerly mayor of Bainbridge; aged 62; died, in November.

Thomas Buchanan Sadler, Corsicana, Texas; Chattanooga (Tenn.) Medical College, 1895; aged 61; died, November 13, of heart disease.

P. C. Chadwick, Rockwood, Tenn.; Chattanooga Medical College, 1909; aged 44; died, October 13, of a self-inflicted wound of the throat.

George Crist Jenkins, Curwensville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1879; aged 77; died in November.

Joseph Delahunt, Marathon, Iowa; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1889; aged 70; died in November.

Henry S. Herman, Hagerstown, Md.; University of Maryland School of Medicine, Baltimore, 1876; aged 80; died, November 14.

William Royal Blackshear, Chireno, Texas; Beaumont Hospital Medical College, St. Louis, 1888; aged 80; died, November 5.

Joseph Edward Bundy, Sheldon, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1883; aged 75; died, November 9.

Lonzo Virgle Smith ⊕ Alhambra, Calif.; Willamette University Medical Department, Salem, Ore., 1906; aged 49; died, October 30.

George Lake Blanchard ⊕ Los Angeles; Creighton University School of Medicine, Omaha, 1902; aged 53; died, August 2.

John D. Tieken ⊕ Piper City, Ill.; St. Louis Medical College, 1879; aged 76; died suddenly, November 19, of heart disease.

Clarence Christopher Duchscherer ⊕ Buffalo; University of Buffalo School of Medicine, 1903; aged 49; died, October 16.

Henry J. Von Gremp, Dixon, Mo.; Missouri Medical College, St. Louis, 1887; aged 67; was killed, August 15, by a train.

Ora Addison Chappelle ⊕ Elgin, Ill.; Rush Medical College, Chicago, 1892; also a dentist; aged 68; died, October 26.

Isaac Walter Bard, Cleveland; Cleveland Medical College, 1874; aged 77; died, November 5, in St. John's Hospital.

Matthew A. Layton, Detroit; Detroit College of Medicine, 1897; aged 67; died, October 31, of cerebral hemorrhage.

William Dallas Richards, Dayton, Ky.; Miami Medical College, Cincinnati, 1889; aged 80; died, November 13.

William T. Booth, Denison, Texas; Hospital College of Medicine, Louisville, 1875; aged 74; died, November 9.

John Page Tourner, Bloomington, Ind. (licensed, Indiana, 1897); aged 76; died, November 10, of heart disease.

Ward B. Short, Riverside, Calif.; Chicago Homeopathic Medical College, 1898; aged 62; died, October 13.

Isaiah T. Epps, La Grange, Ga.; Leonard Medical School, Raleigh, N. C., 1896; aged 62; died, October 30.

Carl E. Pfister, New York (licensed, New York, 1895); aged 70; died, October 31, in Berlin, Germany.

Bureau of Investigation

PHYSICIANS PROTECTIVE CASUALTY COMPANY

A Mutual Assessment Company Selling Accident and Sickness Insurance

During the past year, The Journal has received a number of inquiries relative to the Physicians Protective Casualty Company of Chicago. Especially have inquiries come in recently from Indiana, where this company seems to be rather actively engaged. Typical of the letters received are the following:

To the Editor:—I have been solicited by the Physicians Protective Casualty Company of Chicago for a noncancelable health and accident policy. I would appreciate any information you can give me relative to the company.
J. R. M., M.D., Chicago.

To the Editor:—I have held a policy from the Physicians Protective Casualty Company of Chicago for the last two years. In the earlier part of May, I claimed disability for the first time. A blank was mailed and was filed by the attending physician, as per request. I have written to them repeatedly, asking why they did not answer. Up to this minute my requests are ignored.
D. A., M.D., Brooklyn.

To the Editor:—I am writing an inquiry concerning the Physicians Protective Casualty Company of your city. Any information you can give me regarding them, as to their being an authentic company, will be greatly appreciated by me.
H. M. S., Indiana.

From such information as we have been able to get, it appears that the Physicians Protective Casualty Company was organized in October, 1928, and chartered under the laws of the State of Illinois. It claims to have complied with all the requirements in that state pertaining to mutual assessment companies under the legal reserve plan. The names of the officers and directors have been given as:

President: M. T. Rogers, M.D., Moline, Ill.
Secretary and Treasurer: J. W. Stamper, Chicago.
Vice-President: Carleton E. Gardner, osteopath and chiropractor, Macomb, Ill.
Directors: William E. Washburn, M.D., Kewanee, Ill.; D. Peter Wiens, M.D., Peoria, Ill.; Charles M. Atkinson, M.D., Havana, Ill.; William A. Steele, M.D., Havana, Ill.; William H. Braham, D.D.S., Canton, Ill.

In this connection, it is worth calling attention to the fact that M. T. Rogers, the president, is, apparently, Jennie Maude Thomas Rogers of Moline. We find Dr. Rogers' name in the files of the Bureau of Investigation as "Vice-President" of a so-called Medical and Legal Industrial Bureau of Moline, Ill. From letters received from physicians, it appears that this concern was brought into existence for the purpose of putting out an alleged directory of medical men that, according to the representatives of the Moline concern, would give such medical men as were listed therein preference in industrial insurance work and also act as a guide for insurance companies in selecting their examiners! Physicians, according to our correspondents, who wished to be listed in the proposed "directory" were to be charged sums ranging from $10 to $25. An Iowa physician, who wrote in regarding the scheme, stated that it occurred to him that this might be a "branch of business racketeering." Whether the Medical and Legal Industrial Bureau has ever collected any money from physicians and, if so, whether it has ever published a directory, we do not know. We have heard nothing about the scheme for more than a year and a half.

The moving spirit of the Physicians Protective Casualty Company seems to be the secretary and treasurer, J. W., or John W., or J. Wesley Stamper, who is not a physician but is said to have been formerly a book salesman.

Dr. Rogers and Mr. Stamper were president and treasurer, respectively, of an earlier concern known as the Medical Protective Association, Inc., which, according to a letter sent out over Stamper's name in April, 1927, sold a malpractice-defense service to the following group:

"Our membership principally comprises the following: Chiropractors, Osteopaths, Dentists, Physicians and Surgeons (not members of A. M. A.), Chiropodists, and etc."

This Medical Protective Association should not be confused with a high-grade and reputable insurance company of an almost exactly similar name that had been in existence for years before the Rogers-Stamper concern was organized. The *National Underwriter* for July 28, 1917, was authority for the statement that the certificate granted by the Secretary of State of Michigan to the Medical Protective Association had been canceled at the request of the State Insurance Department.

The Physicians Protective Casualty Company does not sell malpractice defense but accident and health insurance. The *Pocket Register of Accident Insurance* for 1930, published by the Spectator Company of New York and Chicago, shows the condition and business of American stock and mutual accident insurance companies throughout the United States. The issue dealing with the period ending January 1, 1930, states that the Physicians Protective Casualty Company of 105 West Adams Street, Chicago, paid for claims during 1929 only $2,522, while they used $24,871 for agents' commissions and expenses of management. This would indicate that during that period the company was paying out $10 for expenses to each $1 used for benefits!

A Brooklyn physician, whose letter to The Journal is the second of those published above, reported, as will be noted, that although he had held a policy in the Physicians Protective Casualty Company for some time, he was unable to get any attention paid to his claim for disability that he filed with the company last spring. His letters to the company were ignored. Finally, the Bureau of Investigation wrote to the Physicians Protective Casualty Company asking for an explanation of the concern's attitude in the case. The Bureau's letter was written November 4, 1930. On November 6, 1930, the doctor was sent a letter by the Physicians Protective Casualty Company with a check for $60, representing the amount claimed. The excuse given to the doctor was that, at the time his claim was filed, there was a complete change of personnel in the company's office, that his claim was marked paid, but, by oversight no check was issued. The oversight continued, apparently, from May, 1930, until November, 1930, when the Bureau of Investigation wrote to the company asking for an explanation and stating that The Journal expected to publish something on the subject in an early issue.

Those physicians who are prone to take out insurance mainly on the basis of low premium charges, should bear in mind that when dealing with a mutual assessment company, there is always the possibility of their being called on to make up deficits that may be incurred either through errors of management or heavy claims. Just what limits there are to the assessments that the Physicians Protective Casualty Company can call for is not altogether plain from the company's policy. The statement in the policy, "In case of emergency, this policy is subject to such premium payments as may be required by the company," would seem to imply that there is no fixed limit.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TESTS OF STERILITY

To the Editor:—Mrs. A. P. married at 21, became pregnant, and miscarried because of a severe fall. She became pregnant again and had a normal pregnancy, with normal delivery of a living child. There were two more pregnancies with miscarriages for no known cause. She was divorced from her husband, had an operation, so she was told, for the removal of the right tube and ovary, appendix, and also a ventral suspension. She married a second time, became violently ill two months after marriage, an Australian surgeon did an exploratory laparotomy on her, and told her that he found a four weeks' tubal pregnancy in the left tube He told her that he removed the mass, swabbed out the tube, and sewed her up without drainage. She made an uneventful recovery, and the surgeon told her that there was no reason why she should not become pregnant again. In fact, he gave her a signed statement to the effect that the tube was uninjured. This was four years ago, and there has as yet been no further pregnancy. Both the patient and her husband are most anxious to have children and want to know if there is any possibility of another pregnancy. The patient's menses are regular and painless She leads a normal life and is quite healthy. Is it possible to reopen the tube? If so, who is competent to do the operation?
M.D., Georgia.

Answer.—The operation on the only tube which this patient had does not necessarily imply obstruction of this tube and sterility. There are cases on record in which an ovum has been removed from the only tube a patient had and this has been followed by a pregnancy. In some instances the pregnancy subsequent to the operation again developed in the tube that was operated on, but in other instances the fertilized ova were implanted normally in the uterine cavity and full-term children were born. When an ovum is removed from a tube and the tube is left, there is a distinct danger of the recurrence of a pregnancy in this tube and this should be explained to the patient and her husband. This danger is most likely greater than the repetition of an ectopic gestation in the opposite tube in women who have both tubes.

In the present case, to determine whether or not the tube is patent, a Rubin tubal patency test should be performed. If the tube is found to be impermeable to gas, iodized oil should be injected and a roentgenogram taken to determine the site of the obstruction. It is assumed that bimanual examination reveals a normal condition other than the absence of the right tube and ovary. If abnormalities, especially evidences of inflammation, are found, the Rubin test should not be performed. In a fair proportion of cases, pregnancy follows the demonstration of tubal patency by the Rubin test. If an obstruction is found, a plastic operation on the tube may be performed. This can be done by any capable gynecologist, but the patient and her husband should be told that the chances for a uterine pregnancy are certainly no greater than one in five. If the tubal obstruction is due to sealing off of the tubal mucosa, the chances for a pregnancy are much less than in the cases in which the tube is closed by factors outside the tubal lumen.

SCARLET FEVER OR EXFOLIATIVE DERMATITIS

To the Editor:—A boy, aged 6, whom I saw on the third day of illness, had been taken ill with vomiting, diarrhea and fever. He had a rash of one day's duration, typical of scarlatina, a raspberry tongue, a reddened throat and palpable cervical glands. He had been treated with scarlet fever serum seventeen months before when scarlet fever had been diagnosed. In about eight hours he had developed a temperature of 106 F., clearing by the following morning, sixteen hours. The mother says that on several occasions he has developed a similar condition of the tongue and a rash, to subside in about a day with subsidence of the fever. The same symptoms occurred this time. Does this appear to be a simple diffuse erythema, or is it possible that the boy is a scarlet fever carrier, developing mild scarlet fever because of his previous serum treatment? Kindly omit name.

M.D., Connecticut.

Answer.—The administration of scarlet fever antitoxin, therapeutically, for the treatment of scarlet fever already developed in a patient, does not prevent the development of immunity to the disease. Second attacks of scarlet fever may occur whether or not the first attack is treated with antitoxin, but the frequently recurring rashes in this instance are not attacks of scarlet fever. If desquamation follows the erythematous eruption, it would suggest exfoliative dermatitis.

MINERAL OIL ABSORPTION OF VITAMINS

To the Editor:—I have been told that recent experiments with mineral oils show that these oils absorb and carry off the fat-soluble vitamins. So far, I have not been able to locate any published reports of these experiments and wonder whether you could perhaps throw some light on the subject for me.

Miss P. A. Clark, New York.

Answer.—The problem to which our correspondent refers was referred to in an editorial on "Some Recent Observations on Fat-soluble Vitamins" (The Journal, Aug. 27, 1927, p. 694). There have been only few experimental investigations dealing directly with the problem. These have been published as follows:

Burrows, M. T., and Farr, W. K.: *Proc. Soc. Exper. Biol. & Med.* **24:** 719 (April) 1927.
Dutcher, R. A.; Ely, J. O., and Honeywell, H. E.: *Proc. Soc. Exper. Biol. & Med.* **24:** 953 (June) 1927.
Ely, J. O.; Honeywell, H. E., and Dutcher, R. A.: *Pennsylvania State Coll. Agr. Exper. Sta. Bull.* 243, 5, 1929.
Hawk, P. B.; Levine, H.; Stucky, C. J., and Oser, B. L.: Abstract of paper read before the American Chemical Society, Minneapolis, 1929.
Moness, E., and Christiansen, W. G.: *J. Am. Pharm. A.* **18:** 997, 1929.

Indirect references to the subject will be found in the following papers:

Collison, D. L.; Hume, E. M.; Smedley-Maclean, I., and Smith, H. H.: *Biochem. J.* **23:** 637, 1929.
MacDonald, M. B.; Andes, E. C., and Briggs, F A.: *J. Home Econ.* **22:** 213, 1930.
Marcus, J. K.: British patent 289798, Chem. Abstr. **23:** 933, 1929.
Mellanby, John: *J. Physiol.* **64:** 33 (Dec. 29) 1927.
Moore, T.: *Biochem. J.* **23:** 1272, 1929.

The evidence is still somewhat unconvincing, so that further experimental investigation is urgently desired before any final pronouncements on this subject are justified.

TREATMENT OF ALCOHOLISM

To the Editor:—Is there any drug or other agent that will relieve one of an almost overpowering desire for alcohol? I have a patient who pleads with me for such a remedy. These attacks are periodic, but there remains always some desire. With the help of bromides and capsicum I have so far managed to tide him over. However, the situation is far from ideal. Any suggestions would be appreciated. Please omit name and town.

M.D., New Jersey.

Answer.—The solution of the alcoholic habit does not rest on drugs alone; they play the minor part in the treatment. Each alcoholic addict uses alcohol for a reason or cause that is sufficient to himself and the cure depends on the removal when possible of the internal and external causes for which the alcoholism is merely an expression.

The craving for narcotics is not purely a physical need; it is chiefly mental and if the physician can give his patient a mental "kick" that is bigger than the idea or desire for the alcohol he may be successful. It might be advisable to try the following:

Atropine sulphate..................	0.13 Gm.	(2 grains)
Strychnine sulphate................	0.5 Gm.	(8 grains)
Water............sufficient to make	90 cc.	(3 ounces)

One drop three times a day after meals, increasing one drop every twenty-four hours as follows:

First day: morning, 1 drop; noon, 1 drop; night, 1 drop
Second day: morning, 2 drops; noon, 1 drop; night, 1 drop
Third day: morning, 2 drops; noon, 2 drops; night, 1 drop
Fourth day: morning, 2 drops; noon, 2 drops; night, 2 drops
Fifth day: morning, 3 drops; noon, 2 drops; night, 2 drops

The dosage is increased to ten or more drops three times a day until symptoms of atropine poisoning appear; then it is reduced five drops and continued for three weeks more.

The patient should come to the office daily for observation for the first three weeks, and then two or three times a week. If during this time or later an acute desire to drink appears, 3 mg. (one-twentieth grain) of apomorphine should be administered hypodermically every three or four hours until the desire ceases.

SYPHILIS IN PUERPERAL PATIENT

To the Editor:—Two weeks ago an apparently healthy child was born in a local hospital from an apparently healthy mother. The cord Wassermann reaction was 3 + with noncholesterolized antigen and 4 + with cholesterolized antigen. The Wassermann reaction taken on the mother was 4 + with both antigens about a week after delivery. The mother is nursing the baby and both are apparently doing well. Please give the proper treatment for this case. How soon can mercury inunctions be used on the baby? Please omit name and address.

M.D., New York.

Answer.—A 4 plus Wassermann reaction obtained in a puerperal patient signifies syphilis in nearly every instance. A baby born of a syphilitic mother may nurse its own mother. Treatment of both mother and child should be begun soon after birth. The child may be given mercury rubs every second day and also intramuscular injections of neoarsphenamine or other arsenical preparations once a week for a few weeks. For the first few weeks the mother should be given iodide by mouth and intramuscular injections of bismuth, arsenic or mercury preparations. After she has been up and around for a while, intravenous arsenic therapy may be instituted. It is inadvisable to give intravenous therapy, especially arsenic, too soon after childbirth because puerperal women are more prone to have bad reactions from this therapy than are other individuals.

IMPORTANCE OF AIR VENT IN BATH ROOM FROM HYGIENIC POINT OF VIEW

To the Editor:—The city plumbing regulations demand a vent attached to the drain of sinks, bathtubs and toilets; this vent must run to the roof of the building and its purpose is to allow the escape of air and "sewer gas" from the drain pipes. Has it ever been shown that a vent is necessary from the health standpoint, provided the drain has a competent water trap? If a wash basin in a physician's office should be installed without a vent, and used occasionally for the disposal of urine, would it give rise to insanitary conditions or obnoxious odors? Please omit name.

M.D., New Jersey.

Answer.—There is no evidence that sewer gas is a definite health hazard causing any specific disease. It used to be stated that sore throats, diphtheria and typhoid might be spread in this way, but the evidence produced to support these claims is worthless. If continual living under obnoxious conditions directly affects the health, to that extent a vent can be regarded as a minor health factor. It is possible that plumbing installed without a vent might give rise to obnoxious odors. A vent is necessary not so much for the purpose of allowing the escape of sewer odors to the roof as to make it impossible for the "traps" that are standard parts of wash basins, bath tubs and water closets to be siphoned out to the point at which the water in such traps no longer seals them.

NEW NAMES FOR OLD UNACCEPTABLE PROPRIETARY PRODUCTS

To the Editor:—I have received the enclosed letter and literature from the Southwest Medical Supply Company regarding use of their products in the treatment of syphilis, rheumatism, gonorrhea and asthma. Kindly send me any information you have regarding these products: "Onolin," "Aritine," "Amazine" and "Lesol."

M.D., California.

Answer.—Those who noted a recent current comment in The Journal (The Horovitz Proteins and Lipoids Again, The Journal, Dec. 21, 1929, p. 1975) will recognize in the products named by our correspondent the ill concealed names of Gonolin, Arthritine, Asthmazine and Luesol. Here is a group of the various names under which, as pointed out in the comment, the Horovitz proteins and lipoids are marketed by various firms. The advertising circulars that are sent for one group are the same (except for the name of the product) as those sent for the other group, the genealogy of which has been traced from the original Horovitz mixtures, through the Merrell Proteogens, to the present products of the Lipoidal Laboratories, Inc. The advertising for each is a farrago of pseudoscience which will take in only those who have not learned to examine critically the evidence and methods by which more or less astute exploiters attempt to gain medical credence for secret and probably worthless preparations. It is no doubt only a question of time until the discredited Horovitz protein substances and lipoids will break out with new names and possibly a somewhat different line of pseudoscientific advertising copy. Said a famous Frenchman, "The more it changes, the more it is the same thing."

VITAMINS IN CANNED PRODUCTS

To the Editor:—I should like to have the opinion of your Committee on Foods as to the difference of value in vitamins between the following fresh and canned foods of the fall: tomatoes, beets and carrots. What is the value in vitamins of Carnation condensed cream, grapefruit juice, and Karo syrups?

Mrs. O. H. Googe, Atlanta, Ga.

Answer.—Tomatoes, beets, carrots and grapefruit, prepared by the so-called former open kettle process, lose considerable of the original vitamin values. This process, however, is now largely replaced by more modern methods which destroy little of vitamins A and B (complex) and even in larger measure permit preservation of the heat labile vitamin C. The vitamins of acid fruits, such as tomatoes, are especially well preserved in canning.

Condensed milks, as a whole, contain practically all the vitamin A and B content of the original milk. Vitamin C is in lessened amounts.

Karo syrups do not provide vitamins.

VITAMINS IN CANNED CITRUS FRUITS

To the Editor:—Can you tell me in what manner canned citrus fruits are preserved and whether they contain the vitamins of the fresh fruit?

S. A. Munford, M.D., Clifton Springs, N. Y.

Answer.—The only canned citrus fruit products that have been submitted to the Committee on Foods and accepted are Whitefield Genuine Orange Juice and Whitefield Genuine Grapefruit Juice. The announcement of acceptance of the Grapefruit product appears in The Journal, December 13.

The vitamin content of the original orange juice is almost completely preserved in the final product. This preservation is accomplished by low pasteurization temperatures and by processing in an atmosphere of carbon dioxide. The juice is packed under partial vacuum, which is maintained in the containers by special capping.

FLAT FEET

To the Editor:—Should a child at 16 months of age receive treatment for flat feet? This child was seen by me, August 6, and is normal. There are no signs of rickets, the knees are straight, the child walked at 13 months, but both inner malleoli come very near the floor. Would you advise any special treatment? Please do not publish name.

M.D., Iowa.

Answer.—The child probably has flat feet of a hereditary or familial type. This condition is more often found to be transmitted through the paternal side. Accessory scaphoids are often found in this type of condition. Treatment should be instituted immediately. This should include high laced shoes with round toes and rigid shanks. The heels should be longer and higher along the inner borders than on the outer. There should be a flexible inner support for the longitudinal arch. Longitudinal arch exercises should be given to increase the power of the supporting structures of the longitudinal arches. Massage in the corrected position may be beneficial. If this does not produce correction, repeated plaster casts should be applied; while these casts are being worn, the child should be allowed to walk.

PLURAL OF LEPTOSPIRA

To the Editor:—Will you state the plural of the word *Leptospira?* I have seen "leptospiras," "leptospirae," and "leptospira" used by different medical writers. Which is correct? Please omit name and address.

M.B., India.

Answer.—Certain words have English plurals when used as common nouns and Latin or Greek plurals when used in scientific names. For example:

English	Latin
amebas	*Amoebae dysenteriae*
ancylostomas	*Ancylostomata duodenalia*
spirochetes	*Spirochaetae pallidae*
tenias	*Taeniae saginatae*
uncinarias	*Uncinariae americanae*

Therefore it would be the usage of the American Medical Association press to use the form "leptospiras" or "*Leptospirae*" according to the context.

READING OF DIASTOLIC PRESSURE

To the Editor.—Will you please explain the causes of a diastolic pressure of 0 with a systolic 120? Please omit name.

M.D., Michigan.

Answer.—A diastolic pressure of zero may be experienced if the diastolic pressure is read at the complete disappearance of the sound. It is better to consider the diastolic pressure to be the reading found just at the beginning of the fourth phase; i. e., just as the sound begins to get more dull and begins to pass into the fifth phase, where the sound disappears altogether. In this way, readings of zero are more rarely experienced. A low diastolic pressure may occur in aortic insufficiency and with any condition in which there is a peripheral vasodilatation.

VITAMIN E

To the Editor:—Kindly inform me which products contain vitamin E that could be fed to infants.

Leslie Y. Katona, M.D., Flushing, N. Y.

Answer.—Vitamin E is a fat-soluble principle occurring in muscles, fat, pancreas, spleen, liver, heart, hypophysis, placenta and other structures of animals. It is less abundant in the viscera, including the liver, than in muscle. Heart, spleen, brain, kidney and testes contain little E, whereas muscle and fat *contain it in considerable amounts. Milk fat is a* poor source. Cod liver oil is notably lacking in E. The seeds and green leaves from plants are good sources. Even dried lettuce and peas contain it. This vitamin is present in corn, oats and especially in wheat. The germ or embryo of the wheat in particular is an abundant source.

CALCAREOUS DEPOSIT IN PARA-URETHRAL GLAND

To the Editor:—August 15, a woman, aged 44, the mother of fourteen children, consulted me about some bladder trouble. On examination I noted a small tumor about the size of a small marble to the right just below the urethral opening. On palpation the tumor felt as if it contained calculi. I opened the tumor and found 100 stones about the size of a grape seed. No connection with the bladder could be demonstrated. The stones were dry and no urinary odor was present. Please give me your opinion as to the source of the stones.

Harry H. Bolton, Jr., M.D., Pierce, W. Va.

Answer.—Deposits of calcareous material may occur anywhere in necrosing tissue. In the instance referred to, evidently the mucous lining of a para-urethral gland underwent necrobiosis as the result of some inflammatory process and the precipitation of the lime salts followed.

FOOT DROP

To the Editor:—I have a patient suffering from foot drop due to an injury to the knee, leg and ankle. Would there be any chance of this man's recovery of control of the foot if he underwent an operation?

J. R. Stringham, M.D., Cheboygan, Mich.

Answer.—*The injury is indefinite and should be stated* more specifically to warrant a complete reply. No matter what the cause, a foot drop can usually be corrected; this may be possible by nonoperative orthopedic treatment, but surely by operation.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 12, 1931. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery, Ala.

Arizona: Phoenix, Jan. 6-7, 1931. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

Colorado: Denver, Jan. 6, 1931. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

Dist. Columbia: Basic Science, probably Dec. 28, 1930. Regular, Jan. 12, 1931. Washington, D. C. Sec., Dr. W. C. Fowler, District Bldg., Washington, D. C.

Illinois: Chicago, Jan. 13-15, 1931. Supt., Mr. P. B. Johnson, Dept. of Registration and Education, Springfield, Ill.

Minnesota: Minneapolis, Jan. 6-7, 1931. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., Minneapolis, Minn. Regular, Minneapolis, Jan. 20-22, 1931. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., Minneapolis, Minn.

New York: Albany, New York City, Syracuse and Buffalo, Jan. 26-29, 1931. Chief, Mr. H. J. Hamilton, Albany, N. Y.

North Dakota: Grand Forks, Jan. 6-9, 1931. Sec., Dr. G. N. Williamson, Grand Forks, N. D.

Oregon: Portland, Jan. 6-8, 1931. Sec , Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland, Ore.

Pennsylvania: Philadelphia, Jan. 6-10, 1931. Sec., Mr. C. D. Koch, Harrisburg, Pa.

Rhode Island: Providence, *Dec. 30-31, 1930. Dir.*, Mr. L. A. Round, Room 319 State Office Bldg., Providence, R. I.

Washington: Seattle, Basic Science, Jan. 8-9, 1931. Regular, Jan. 12-13, 1931. Dir., Mr. Charles Maybury, Olympia, Wash

Wisconsin: Madison, Jan. 13-15, 1931. Sec., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

Wyoming: Cheyenne, Feb. 2, 1931. Sec., Dr. W. H. Hassed. Capitol Bldg., Cheyenne, Wyo.

Porto Rico September Examination

Dr. Diego A. Biascoechea, secretary of the Board of Medical Examiners of Porto Rico, reports the written and practical examination held at San Juan, Sept. 2-13, 1930. The examination covered 16 subjects and included 75 questions. An average of 75 per cent was required to pass. Ten candidates were examined, 9 of whom passed and 1 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine	(1929)	86.7
George Washington University Medical School	(1930)	87.6
University of Georgia Medical Department	(1929)	78
University of Maryland School of Medicine	(1930)	84.8
Boston University School of Medicine	(1930)	81.8
Harvard University Medical School	(1929)	84.6
Columbia University College of Phys. and Surgs	(1930)	87.3
Jefferson Medical College	(1924)	85.1
University of Lausanne Faculty of Medicine	(1928)	81.3*

College FAILED	Year Grad.	Per Cent
Chicago College of Medicine and Surgery	(1916)	51 †

* Verification of graduation in process.

† This candidate took the examination the first day, September 2, but did not reappear for the completion of the examination. He obtained a grade of 51 per cent in the first subject, Anatomy.

New Jersey June Examination

Dr. James McGuire, secretary of the Board of Medical Examiners of New Jersey, reports the written examination held at Trenton, June 17 and 18, 1930. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Eighty-six candidates were examined, 83 of whom passed and 3 failed; 1 withdrew. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
Yale University School of Medicine	(1928) 80.5, (1929)	81.5
Georgetown University School of Med.	(1928) 80.8, (1929)	78.6, 79.4, 79.5, 79.9, 80, 80, 81.3, 82.1, 83.2, 85.7, 86.7
George Washington University Medical School	(1927)	82.3, (1929) 82.9, 83.7, 88.2, 89
University of Maryland School of Medicine	(1929) 82.8, 83.6,	85.7
Boston University School of Medicine	(1929)	80.5
Tufts College Medical School	(1929) 87.7, 88.8,	89.2
Long Island College [illegible]	(1929)	78.5
[illegible]	(1929)	81.8
[illegible]	(1929)	78 6,
[illegible]	[illegible]	[illegible] 3.6, 84.3, 86.3, 87.3, 88.7
[illegible]	[illegible]	[illegible] 0.8, 81.3, 82.7, 84.3, 84.7
[illegible]	(1928)	83.2,
University of Pennsy[illegible]		(1929) 83.3, 83.7, 84.3, 84.6, 85.8, 88.0
Medical College of Virginia	(1929)	78.5
Laval University Faculty of Medicine	(1928)	82.2
McGill University Faculty of Medicine	(1929)	82.6
Queen's University Faculty of Medicine	(1929)	80.3
University of Manitoba Faculty of Medicine	(1928)	90
University of Montreal Faculty of Medicine	(1925)	79.5
University of Toronto Faculty of Medicine	(1911)	79.5, (1921) 76.4, (1928) 80.3
Catholic University of Louvain Faculty of Medicine	(1930)	75*
Osteopaths		76.1, 76.1, 76.5, 76.6, 78.1, 78.3, 79.4, 80.4, 81.2, 81.4, 81.7, 83.7, 84.5, 86.1, 86.4, 88.2

College FAILED	Year Grad.	Per Cent
Boston University School of Medicine	(1926)	72.7
University of Naples Faculty of Medicine	(1926)	59.2
Osteopaths		68.4

Dr. McGuire also reports 86 physicians and 4 osteopaths licensed through reciprocity with other states and 8 physicians by the endorsement of credentials, from Jan. 1 to July 14, 1930. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists	(1929)	Maryland
Yale University School of Medicine	(1922)	Maine
Georgetown University School of Medicine	(1922) (1927)	Dist. Colum.
	(1928, 2) (1929, 2)	New York
George Washington University Medical School	(1927)	New York
	(1928)	Maryland
	(1904) (1925) (1929)	Dist. Colum.
Howard University School of Medicine	(1927) (1928, 3)	Dist. Colum.
Chicago College of Medicine and Surgery	(1913)	Iowa
University of Louisville School of Medicine	(1927)	New York
	(1928)	Kentucky
University of Maryland School of Medicine	(1929)	New York
	(1921) (1929, 2)	Maryland
Boston University School of Medicine	(1928, 2) (1929)	New York
Tufts College Medical School	(1929)	Mass.
University of Michigan Medical School	(1927) (1928, 2)	Michigan
University of Minnesota Medical School	(1919)	Minnesota
Bellevue Hospital Medical College	(1896) (1898)	New York
Columbia University College of Phys. and Surgs	(1914)	Penna.
	(1919) (1927, 2) (1928, 5)	New York
Cornell University Medical School	(1916) (1927)	New York
Fordham University School of Medicine	(1918) (1921)	New York
Long Island College Hospital	(1928, 2) (1929)	New York
New York Homeopathic Medical College	(1929, 2)	New York
Syracuse University College of Medicine	(1928) (1929)	New York
University and Bellevue Hospital Medical College	(1927, 3)	New York
Eclectic Medical College, Cincinnati	(1925)	Ohio
Miami Medical College	(1906)	Ohio
University of Cincinnati College of Medicine	(1928)	Ohio
Hahnemann Medical College of Pennsylvania	(1928)	Penna.
Jefferson Medical College	(1925) (1928)	N. Carolina
	(1921)	Georgia
	(1896) (1920) (1927)	Pennsylvania
Medico-Chirurgical College of Philadelphia	(1915)	Penna.
Temple University School of Medicine	(1921) (1928, 2)	Penna.
University of Pennsylvania School of Medicine	(1929)	New York
	(1927) (1928)	Pennsylvania
Woman's Medical College of Pennsylvania	(1924)	Penna.
Meharry Medical College	(1923)	Ohio
Vanderbilt University School of Medicine	(1916)	New York
	(1919)	Pennsylvania
University of Texas School of Medicine	(1922)	Texas
University of Vermont College of Medicine	(1928)	Vermont
Medical College of Virginia	(1924)	Virginia
McGill University Faculty of Medicine	(1916)	Maine
University of Toronto Faculty of Medicine	(1924)	Penna.
University of Frankfort-on-Main Faculty of Medicine	(1920)*	Minnesota
University of Budapest Faculty of Medicine	(1908)*	W. Virginia
University of Naples Faculty of Medicine	(1922)	Texas
Osteopaths	(3)	Missouri
	(1)	New York

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Yale University School of Medicine	(1927)	N. B. M. Ex.
Columbia University College of Phys. and Surgs	(1924, 2)	N. B. M. Ex.
Cornell University Medical School	(1924) (1928)	N. B. M. Ex.
University and Bellevue Hospital and Med. College	(1926)	N. B. M. Ex.
University of Oregon Medical School	(1922)	N. B. M. Ex.
University of Pennsylvania School of Medicine	(1920)	N. B. M. Ex.

In addition Dr. McGuire reports 28 physicians and 2 osteopaths that were licensed through reciprocity with other states, and 3 physicians licensed by the endorsement of credentials during November and December 1929. The following colleges were represented:

College LICENSED BY RECIPROCITY IN 1929	Year Grad.	Reciprocity with
Georgetown University School of Medicine	(1926)	R. Island
Howard University School of Medicine	(1928)	Dist. Colum.
Tulane University of Louisiana School of Medicine	(1928)	New York
Boston University School of Medicine	(1906)	Maine
Tufts College Medical School	(1906)	Mass.
University of Michigan Medical School	(1926)	New York
St. Louis University School of Medicine	(1926)	Ohio
University of Nebraska College of Medicine	(1925)	Nebraska
Columbia Univ. College of Phys. and Surgs	(1927) (1928)	New York
Cornell University Medical School	(1925)	New York
New York Homeopathic Medical College	(1928, 2)	New York
University and Bellevue Hosp. Med. Coll.	(1927, 2) (1928, 2)	New York
University of Cincinnati College of Medicine	(1923)	Penna.
Jefferson Medical College	(1911) (1926) (1928)	Penna.
Medico-Chirurgical College of Pennsylvania	(1909)	Penna.
Univ. of Pennsylvania School of Med.	(1895) (1924) (1926)	Penna.
University of Texas School of Medicine	(1926)	Texas
University of Toronto Faculty of Medicine	(1922)	New York
University of Budapest Faculty of Medicine	(1921)	Vermont
Osteopaths	(1)	Maryland
	(1)	Missouri

College 1929 ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Harvard University Medical School	(1927)	N. B. M. Ex.
Columbia University College of Phys. and Surgs	(1927)	N. B. M. Ex.
University of Pennsylvania School of Medicine	(1923)	N. B. M. Ex.

* Verification or graduation in process.

Book Notices

Illustrated Primer on Fractures. Prepared by the Cooperative Committee on Fractures under Auspices of Section on Surgery, General and Abdominal, and Section on Orthopedic Surgery in Cooperation with Department of Scientific Exhibit of the American Medical Association. Cloth. Price, $1. Pp. 55, with illustrations. Chicago: American Medical Association, 1930.

This consists of a series of line drawings representing certain standard procedures in fracture work, with the high points in each procedure represented by signs on the walls of the room in which the procedure is being carried out. Following each drawing is a concise text. The drawings are simple and clear and give definite ideas of the important points in each procedure. Though variations in fractures and roentgenograms are not considered, a few anatomic diagrams are introduced for each procedure and they are illuminating to the text. Most of the book goes straight to the point of how to do it, but a few timely warnings are given. Only the simplest methods of treatment with plaster and well known standard splints are shown. Methods of traction, transportation, reduction and the prevention of deformities are gone into simply and effectively. For the student and for the general practitioner who must treat an occasional fracture, the book is a valuable contribution. The diagrams are not beautiful but they are extremely clear. The book follows the demonstrations devised by the Fracture Committee of the American Medical Association and is practically a reproduction of these, necessarily lacking one important phase—the possibility of getting additional information from the demonstrator in charge of the booth. The book fulfils its purpose.

Ergebnisse der Sozialen Hygiene und Gesundheitsfürsorge. Band II. Herausgegeben von Professor Dr. A. Grotjahn, o. Professor der Sozialen Hygiene an der Universität Berlin, Professor Dr. L. Langstein, a. o. Professor der Kinderheilkunde an der Universität Berlin, und Professor Dr. F. Rott, Privatdozent für Soziale Hygiene an der Universität Berlin. Paper. Price, 36 marks. Pp. 497, with 27 illustrations. Leipzig: Georg Thieme, 1930.

The second volume of this useful publication is worthy of its predecessors. It contains comprehensive discussions of such subjects as the relative influence of social environment and inheritance, the methods and value of periodic health examinations, the feeding and recreative facilities of school children, the epidemiology of poliomyelitis, tuberculosis mortality in England and Wales, the new German mortality tables, the specific male mortality as a means of measuring the mortality due to alcohol, and other topics of more or less general interest. As has been noted before in reviewing recent German summaries, some of the articles suffer because the authors have not, apparently, had access to other data than those in the German language. In the present volume this limited outlook is especially noticeable in the discussion of poliomyelitis, in which the extensive and fundamental work of Aycock and others in the United States receives scant consideration. The article on periodic health examinations, on the other hand, draws freely on the rich American data. Although of varying value for the American reader, nearly all the articles contain information and reveal points of view that will be of assistance to the reader able to supplement his knowledge from other sources.

Nervous Indigestion. By Walter C. Alvarez, M.D., Associate Professor of Medicine, University of Minnesota (The Mayo Foundation). Cloth. Price, $3.75. Pp. 297. New York: Paul B. Hoeber, Inc., 1930.

This monograph is the outgrowth of the author's contributions to medical periodic literature. It provides not only his own contributions in the field of research but also his clinical study. Indeed, the clinical phase represents at least half of the complete work. Each of the chapters is preceded by quotations from secular literature. Dr. Alvarez considers relationship of emotion to the digestive tract, types of indigestion, hints in regard to the taking of a history, the handling of a patient, the treatment of nervous indigestion, and some practical points about the physiology and innervation of the digestive tract. He concludes his book with a bibliography, and a chapter of suggestions for further reading. As is usual with volumes issuing from the Hoeber press, this book is pleasing from a typographic point of view, the type column makes for easy readability, the type itself is large, the side and center heads split up the text, and the text itself has in it the literary quality that one has come to associate with the Alvarez contributions. The author presents his cases so graphically that his language makes them visible. He is by way of being a practical psychologist who gets his results promptly rather than by the forever enduring methods of the modern psychoanalyst. It is doubtful whether patients with nervous indigestion can be cured of their complaints by reading books, but it seems likely that this volume would do much for such a patient; certainly the physician will want to know as much as the patient will know when he has finished reading it.

The Psychoanalysis of the Total Personality: The Application of Freud's Theory of the Ego to the Neuroses. By Franz Alexander, M.D. Authorized English translation by Bernard Glueck, M.D., and Bertram D. Lewin, M.D. With a prefatory note by A. A. Brill, M.D. Boards. Price, $3.50. Pp. 176. Washington, D. C.: Nervous and Mental Disease Publishing Company, 1930.

This volume begins with a foreword by Dr. Brill which traces the evolution of the freudian conception from its first announcement to the present time. Dr. Brill points out that the present volume deals with the development of the ego, its rôle in the neuroses and psychoses, and the basic instinct of the neuroses and perversions. The translators, in their preface, emphasize the practical character of this work and attempt to make clear the peculiar nomenclature with which the freudians surround their discussions. Finally, the author, in his introduction, reveals the fact that he is concerned primarily with the way in which the modern freudian psychology concerns itself with the total personality rather than with the instinct alone. The book consists of nine lectures which distinguish the various conceptions of the ego and the superego, leading to the conclusion that a neurosis represents a conflict between the ego and the instinctive needs. The narcisistic neurosis appears to be a struggle between the ego and the superego. This volume is obviously of more interest to the freudian, and to those who are concerned immediately with the freudian, than to the general reader. For the latter, it will be very slow going; moreover, comprehension will be difficult, and, in some instances, belief will be even more difficult. The freudian conception represents one of the greatest contributions of the twentieth century, but the day is still far distant for its application to general medical practice.

Sertse i Grippoznoe Vospalenie Zubov i Mindalin. Dr. B. A. Egorov. [Heart and Influenza, Paradentitis and Tonsillitis. By Dr. B. A. Egorov.] Paper. Pp. 108, with illustrations. Moscow, 1930.

The author observed cases in which signs and changes of septic endocarditis remained stationary for long periods. Moreover, the intensity of functional changes did not correspond to that of organic changes. Palpitations, cardiac pains, suffocation and dyspnea were considerable, while the cardiac murmurs or occasional dilatation of the heart were insignificant. The third particular feature of the cases consisted in the presence of mental disturbances. Hypochondriasis, melancholia and depression were the signs of a mental reaction. There was a persisting fever. The patient's history pointed always to a sore throat or to influenza as the origin of the "endocarditis." The tonsils proved to be responsible for the fever; removal or cauterization of the tonsils was followed by lowering of the temperature. *Further examination revealed that the cardiac phenomena simulating endocarditis were associated with irritation of a certain section of the sympathetic nervous system.* The connection between a chronic infection of the tonsils and an irritation of the sympathetic cervical and thoracic ganglions is explained as follows: Inflammation of ganglions and of plexuses, mechanical compression of a sympathetic plexus by enlarged cervical glands, also functional hyperemia or ischemia of sympathetic ganglions are factors of irritation of the sympathetic nervous system. Viscerovisceral and axonal reflexes may accompany the vasomotor changes. Variations of blood pressure in vessels of the sympathetic nervous system may assume a certain rôle. Infection of the tonsils or of the periodontal tissues is a frequent cause. Other septic foci, as chronic sinusitis or chronic infection of Highmore's antrum are able to induce an analogous cardiac syndrome. In one

BOOK NOTICES

instance, the latter was caused by chronic tuberculosis of the ear and of the temporal bone. Other forms of an infectious vegetative syndrome may be observed, but the cardiotonsillar form is the most usual. The septic focus in the tonsils was frequently associated with that in the periodontal tissues. In rare cases, septic foci were found in the paranasal sinuses and in the adnexa. Egorov stresses that an acute influenza may result in chronic inflammatory processes, as "grippal sore throat," "glippal periodontitis" or "chronic influenza."

Anatomy. By George W. Corner, M.D., Professor of Anatomy in the University of Rochester. Clio Medica, a series of primers in the history of medicine. Cloth. Price, $1.50. Pp. 82, with 8 illustrations. New York: Paul B. Hoeber, Inc., 1930.

Medicine in the British Isles. By Sir D'Arcy Power, K.B.E., F.R.C.S., Honorary Librarian at the Royal College of Surgeons of England. Clio Medica, a series of primers in the history of medicine. Cloth. Price, $1.50. Pp. 84. New York: Paul B. Hoeber, Inc., 1930.

These two contributions will be greeted with pleasure by all those who love medical history for itself alone or who want their medical history in an easily readable, compact form. The books are essentially monographs of some twenty thousand words. That they do not deal entirely with subjects that are obsolete is apparent by the book by Power, which provides not only a history of the development of medicine in the British Isles but also a picture of the practice of medicine in Great Britain today. Moreover, this, as well as the other book, is supplemented by a bibliography that means much to those who care to look into the matter further.

Reminiscences of George Martin Kober, M.D., LL.D., Emeritus Dean and Professor of Hygiene of the School of Medicine and Member of the Board of Regents, Georgetown University, Washington, D. C. (In Two Volumes.) Volume I. Cloth. Price, $5, per set. Pp. 403, with illustrations. Washington, D. C.: Kober Foundation of Georgetown University, 1930.

Dr. George Martin Kober celebrated his seventieth birthday in 1920. He now presents the first volume of his autobiography, which covers his early life and reminiscenses of Germany, his arrival in the United States, and his relationship to the United States Army through the campaign of General Howard, about 1878. The book is full of interesting personal material; however, the detail is so overwhelming as to make the work forbidding to all except those who have had personal relations or acquaintanceship with its author. Volume I covers a period when the United States and medicine in the United States were undergoing growing pains. No doubt the subsequent volumes will carry the author through the adolescence and maturity of the advancement of medical education and bacterial investigation, in which he has played a considerable part.

The Physiology of the Vestibular Apparatus. By Mario Camis, Director of the Institute of Physiology of the Royal University of Parma. Translated and annotated by R. S. Creed, B.M., B.Ch., M.A. Cloth. Price, $7.50. Pp. 310, with 65 illustrations. Oxford: Clarendon Press, 1920.

This book is the result of much research. After a history of the early work on the physiology of the labyrinth, the anatomic details of the vestibular apparatus and its nervous connections are described in detail. The next chapter deals with operative methods for the study of the labyrinth of animals together with the effect of partial and complete destruction of the labyrinth. Following the experimental stimulation of the labyrinth, the author considers the labyrinth as an organ of the sense of space and then as an organ of reflex function. The relations of the labyrinth to the eye and ocular nystagmus, as well as the analysis of the labyrinthine reflexes are given quite fully. While most of the work deals with animal experimentation, the last chapter is devoted to the examination of the labyrinthine reflexes in man, the adequate stimulus for the sensory organs of the labyrinth and the nervous connections of the vestibular apparatus. This is a scholarly monograph and deserves close study for it contains innumerable important matters, some of which are not as yet entirely clear from either the physiologic or the clinical point of view. The illustrations are good and the translators have rendered the original Italian into excellent English. This work will serve as an excellent reference book for otologists, physiologists and others who are interested in the structure and function of the static apparatus.

The Pathology of Diabetes Mellitus. By Shields Warren, M.D., Pathologist of the New England Deaconess Hospital, Boston. With a foreword by Elliott P. Joslin, M.D. Cloth. Price, $3.75 net. Pp. 212, with 85 illustrations. Philadelphia: Lea & Febiger, 1930.

In this book, which is based on the study of 300 cases, Warren again brings into focus the various phases of the pathology of diabetes. A consideration of the insular hypothesis is followed by the description of the histology of the normal pancreas. The lesions of the pancreas seen in diabetes are then described and compared with lesions observed in the pancreas of nondiabetic individuals. A conclusion at this point is important. "It is striking that practically any lesion found in the pancreas of diabetic individuals, either involving the island tissue, the acinar tissue or both, can be duplicated in the pancreas of nondiabetics." Only the greater frequency of such lesions in diabetic patients justifies their consideration as presumptive evidence of diabetes, and, without information of the previous clinical course or without studies of the glycogen distribution in other organs, the diagnosis of diabetes cannot be made. The complications of diabetes receive attention, especially those associated with or resulting from arteriosclerosis. The importance of arteriosclerosis is evident from the frequency of deaths resulting from it, 72 of the 300 cases. The rôle of infection is equally important, this being the cause of death in 126 cases; syphilis played a minor part. Only two of the deaths were due to syphilis and not a pancreas in the series showed changes attributable to this cause. Tuberculosis accounted for only thirteen deaths. Diabetes in children, hemochromatosis, insulin resistance and hyperinsulinism are discussed, as well as the association with diabetes of other endocrine disorders. This leads to a consideration of theories as to etiology. In the series of 300 diabetic necropsies, the pancreas was available for detailed histologic study in 259. Of these, 69 were normal so far as could be determined and no lesions of other organs were sufficient to explain the existence of diabetes. This again raises the puzzling question of the nature of the pathologic functioning in these relatively frequent instances of diabetes without apparent cause. The book is well written and beautifully illustrated. It is authoritative and should be made available in medical libraries for every student of this disease.

Generations of Adam. By A. L. Wolbarst, M.D. Cloth. Price, $3.50. Pp. 355. New York: Newland Press, 1930.

Dr. Wolbarst is by specialty a urologist. The evolution of medical practice has largely removed the control of the mental aspects of sex life from the urologist to the psychiatrist and the psychoanalyst, although the most advanced urologists are keeping themselves abreast of the changing points of view. There are, of course, in addition, the persons who emphasize the glandular and constitutional aspects of sexual disturbances. This volume by Dr. Wolbarst is addressed to a lay rather than a medical audience, and it bears the endorsement of both physiologists and psychoanalysts. It answers, for those who are likely to propound such questions, the usual inquiries concerning the development of sex, puberty and the problems of masturbation and the sex urge in maturity. The years of practice of the author have caused him to take what might be called an exceedingly modern view of the entire situation. The Victorians will find little in his book to please them. His literary style is easily comprehended, and his directness is refreshing.

A Text-Book of Histology. By Harvey Ernest Jordan, A.M., Ph.D., Professor of Histology and Embryology, University of Virginia. Fifth edition. Cloth. Price, $7. Pp. 857, with 598 illustrations. New York: D. Appleton & Company, 1930.

The fact that this book appears now in the fifth edition in fifteen years attests its popularity with medical students, for whom it was written. Features that have made it popular with them are the clearness of the text and the abundance of the illustrations. There are 594 figures with 4 plates. More than half were made especially for this work and many are based on photographs. The chapters on histologic technic and on directions for laboratory work have made it especially useful in the class room. In this edition the section on the function of the hypophysis has been rewritten and there has been added a new view of bone growth based on the work of Policard and Leriche ascribing a new rôle to osteoblasts, osteoclasts and bone cells. Progress in other fields has been noted mainly by footnotes to the text.

Dietetics for High Schools: A Textbook in Nutrition and Food Economics. By Florence Willard, Chairman of the Department of Home Economics, Washington Irving High School, New York City, N. Y., and Lucy H. Gillett, Superintendent of the Nutrition Bureau, N. Y. A. I. C. P., New York City, N. Y. Second edition. Leatherette. Price, $1.40. Pp. 290, with 28 charts. New York: Macmillan Company, 1930.

This textbook on dietetics is intended as a help to teachers to present the principles of nutrition in a simple yet scientific manner in the last year of junior high school or any year in senior high school. The subject matter is arranged for one year of five recitation periods per week. Problems, questions and references accompany the chapters. The purpose is to awaken the interest of the youthful student in the more prominent facts of the newer knowledge of nutrition, to make him conscious of habits of food health, to provide a simple understanding of the chemistry of foods, and to teach him how to select the food he needs. The subject matter is presented with a view to practical application. Chapters are devoted to the energy value of food, energy requirements of individuals, composition of foods, mineral elements and vitamins. The latter half of the book considers practical food selection in general and for the members of a family of six children of scattered ages, the parents and the grandmother. Planning of meals and purchasing of food to meet body needs and restrictions of the pocketbook are discussed. Forty-one useful tables are given.

Die Therapie der Wiener Spezialärzte. Bearbeitet von den Fachärzten Wiens. Herausgegeben von Dr. Otfried O. Fellner, Frauenarzt in Wien. Third edition. Cloth. Price, 20 marks. Pp. 666. Berlin: Urban & Schwarzenberg, 1930.

A book on therapy, that is the product of more than a hundred medical and surgical specialists of the celebrated Viennese clinic and arranged alphabetically for ready reference, deserves recognition by practitioners who read German. It is so replete with useful, generally orthodox, information, that it is perhaps invidious to point out minor defects, such as excessive fondness for proprietary medicines, on the part of some of the contributors.

Miscellany

REPORT ON MINERS' PHTHISIS IN SOUTH AFRICA

The Miners' Phthisis Medical Bureau of the Union of South Africa in the year ended July 31, 1929, made 45,801 examinations and case investigations. The diagnostic procedure now in use for several years and noted in previous reports has become a standard of the bureau for the diagnosis of silicosis. The continued use of the method has served to confirm it as a standard rather than to produce any modification. Silicosis progresses more rapidly among the African natives who work in the mines than among the European laborers. It is well known that tuberculosis commonly exists in conjunction with silicosis. Obvious tuberculosis was found in 31.4 per cent of 121 cases in which silicosis was found, post mortem, during the year. Evidence of silicosis was found after death in the lungs of fifteen persons whom the bureau had examined within six months of death without finding clinical evidence of silicosis or tuberculosis. The amount of silicosis found by the pathologist in these fifteen cases after death was "very slight" or "slight," except in two cases in which it was classified as "moderate." The bureau examined 22,447 specimens of sputum, of which 2,620 were from Europeans and 19,827 from natives; 15.11 per cent of the former and 16.89 per cent of the latter were positive for tubercle bacilli. Comparatively few specimens of urine were examined. The conclusion drawn was that there is no evidence of a larger number of cases of disordered kidney function among silicotic persons than among those who do not have silicosis. The total number of working miners examined was 15,492, all of whom had previously had an initial or a periodic examination. Among these, 424 were found to have simple silicosis, giving a rate of 2,737 per hundred thousand; 154 of these cases, however, were old cases; that is, miners who had previously been certified as having silicosis. There were, therefore, 270 new cases which originated during the year. The rate at which new cases of silicosis developed for all working miners was 1,761 per hundred thousand, as compared with a rate of 1,941 for the previous year. With one exception, the rate was the lowest on record for the last ten years and was less than half the rate for the year 1925-1926.

During the year, 22 cases of simple silicosis developed among 8,360 "New Rand miners"; that is, those who have been working at scheduled mines only since Aug. 1, 1916. The rate of incidence of new cases among them was, therefore, 263 per hundred thousand. The average duration of underground work of these 22 new cases was nine years and nine months. Among 5,672 "Old Rand miners" (those who commenced work prior to Aug. 1, 1916) there were 197 new cases of silicosis, a rate for them of 3,473 per hundred thousand. The average duration of work in the scheduled mine performed by these 197 miners who became silicotic during the year was twelve years and eleven months.

There has been since the period 1920-1923 a fall in production rates for silicosis of 36 per cent. The reduction was not gradual during the whole period, for there was a marked rise from 1923 to 1926. It is likely that not much, if any, further decrease in the number of cases arising is likely to take place for years to come. The cause for the reduction was given in previous reports by the bureau and was not discussed in detail in the last report. The average duration of underground service of those who contracted silicosis has increased in about ten years from 114 to 151 months. It is necessary to repeat that this reduction in the length of service applies only to those miners who actually contracted silicosis and not to the whole body of working miners. The figures of twelve or thirteen years cannot, therefore, be regarded as an approximate measure of the average effective working life of a miner.

A nontuberculous nodular fibrosis of the lung, due to silica dust, is a distinct pathologic process and is the chief feature of the majority of cases of simple silicosis. This process may advance considerably without being complicated by infection. There exists, however, in most cases of simple silicosis, from the time that it becomes detectable, a latent low grade tuberculous infection, which may be associated with some of the silicotic lesions. These infected lesions may originate from tuberculous foci, dating back to early life, or they may be due to a reinfection occurring during the development of the silicotic lesions. Gye and Kettle have shown that finely divided silica has a specific effect in the selection of the site of tuberculous infection. It is characteristic that a chronic tuberculous infection developing in a silicotic lung is apt to be of low virulence and accompanied by excessive fibroid reaction, resulting in large areas of a massive infective consolidation in which the siliotic nodules are cemented together by organized inflammatory products. To this condition the general term "infective silicosis" or "tuberculosilicosis" has been applied. Uncomplicated silicosis may undergo prolonged and apparently indefinite arrest at any stage: this is also true, to a less extent, of "infective silicosis." While the condition may remain practically stationary for long periods, infection gets the upper hand in the end, and, when that occurs, the greater the amount of original damage to the lung, by silicosis, the more rapid will be the final breakdown.

The great diminution in the amount of dust in mine air has been the chief factor in lessening the incidence of silicosis. That fact, however, is believed to be the chief cause also of a change in the type of the disease to a relatively more infective type and, therefore, to a more progressive type. The effect of great quantities of dust was to produce an excessive fibrosis and this tended in many cases to retard the progress of tuberculosis. There is still the same need for the fullest control of early tuberculosis, that existed formerly when silicosis was more prevalent, because the tendency of the disease toward termination by a tuberculous infection has in no way diminished. Among 15,492 miners undergoing periodic examinations during the year, 44 had simple tuberculosis, a rate of 284 per hundred thousand. This was considerably higher than for the previous year. The report demonstrates plainly that the liability to death bears a direct relation to the relative prominence of the tuberculous factor in each class of case. An early conjunction of active tuberculosis with silicosis produces a condition that is more rapidly fatal than an active simple tuberculosis alone. The report is signed by Dr. Louis H. Irvine, chairman of the Miners' Phthisis Medical Bureau. The personnel of the bureau comprising physicians, medical examiners, radiologists, pathologists, photographers and clerks, did not change during the year.

Medicolegal

Loss of Remaining Eye in Industrial Accident

(Lehman v. Schmahl, State Treasurer, (Minn.), 229 N. W. 553)

Section 4276, G. S. of Minnesota, 1923, provides, in part, as follows:

> If an employe receive an injury, which of itself, would only cause permanent partial disability, but which combined with a previous disability does in fact cause permanent total disability, the employer shall only be liable for the permanent partial disability caused by the subsequent injury.
>
> Provided, however, that in addition to compensation for such permanent partial disability and after the cessation of the payments for the prescribed period of weeks, the employe shall be paid by the state the remainder of the compensation that would be due for permanent total disability, out of a special fund known as the Special Compensation Fund. . . .

Lehman lost the sight of one eye through the formation of a cataract. Subsequently an injury sustained in the course of his employment destroyed the other eye. His employer and the insurance carrier compensated him for permanent partial disability. The industrial commission awarded him the remainder of the compensation payable for permanent total disability, to be paid out of the special compensation fund, established by payments which every employer or his insurance carrier is required to make for every injury causing the death of an employee who leaves no dependents entitled to compensation. The state treasurer, the custodian of the special fund, thereupon appealed to the Supreme Court of Minnesota, contending that the previous partial disability of Lehman resulted from natural causes in no way connected with an industrial accident. The legislature, it was urged, intended to impose on industry liability for disability resulting from industrial accidents but did not intend to impose on industry liability for disabilities resulting from natural causes.

The legislature recognized, the court said, that a partially disabled workman would be handicapped in obtaining employment if the employer were to be held liable for total disability in case a subsequent disability combined with the prior disability should result in total disability. It would be inequitable, too, to require the last employer to bear the entire burden in such cases. The legislature recognized, on the other hand, that where a partially disabled workman suffers an injury which, of itself, would cause only partial disability but which, added to the prior disability, causes total disability, he loses entirely the power to earn which he previously possessed and which he would still possess but for the subsequent injury. To provide for such cases the special compensation fund was created.

Where a workman having but one eye, said the supreme court, loses that, the compensation provided for the loss of one eye, based on the theory that he still retains the use of the other, is far from adequate. The section of the statute quoted was intended to provide for such cases. The incapacity resulting to a workman from the loss of his remaining eye is the same whether he lost the other in an industrial accident or in some other manner. The statute grants the additional compensation where an injury causing partial disability, combined with a *previous disability*, causes total disability. The statute uses the words *previous disability* without in any way limiting the meaning to be given to them. There is nothing to indicate an intention to give the additional compensation only in those cases in which the *previous disability* resulted from an industrial accident. If the legislature had intended the additional relief to be given in such cases only, it would have expressed that intention in the statute.

In view of the liberal construction given to such statutes for the purpose of securing for a disabled workman the benefits intended, the court affirmed the award of the industrial commission.

Death Following Vaccination a Compensable Injury

(Neudeck v. Ford Motor Co. (Mich.), 229 N. W. 438)

The Ford Motor Company ordered the vaccination of its employees, at the request of the Detroit board of health. The claimant's husband, an employee of the company, was so vaccinated and subsequently died. The claimant was awarded compensation by the department of labor and industry and the employer brought certiorari to the Supreme Court of Michigan. It was agreed that the company ordered the employee to be vaccinated, that he was vaccinated by a company physician, and that as a result of the vaccination the employee incurred a streptococcus poisoning, the focus of the infection being the vaccinated arm, from which he died. The company contended that the vaccination was not an accident, and, further, that if the infection was an accident there was no proof that the germs entered the wound at the time of vaccination or when the employee was at work.

In a note to 39 A. L. R. 872, it is stated:

> An external infection which has been distinctly traced to a definite point of contact, such as a scratch or abrasion, and to a definite time, being of an unusual nature and generally happening suddenly or unexpectedly, is generally held to constitute an accident, or an injury by accident, within the meaning of the act.

This rule, said the supreme court, is sustained by the decisions in *Cline* v. *Studebaker Corporation*, 189 Mich. 514, 155 N. W. 519, L. R. A. 1916 C, 1139, and *Blaess* v. *Dolph*, 195 Mich. 137, 161 N. W. 885. In the Cline case an infection developed in the eye of an employee from an attempt of a fellow workman to remove a piece of steel from it. In the Blaess case, an undertaker's assistant became infected through a slight cut on his finger while working on the body of one who had died from infection. In both of these cases the infection was held to be an accident.

The company relied on the case of *Krout* v. *J. L. Hudson Co.*, 200 Mich. 287, 166 N. W. 848, L. R. A. 1918 F, 860, in which an employee was vaccinated by a physician employed by the city board of health and later contracted infection. It was held that the infection was not a compensable accident because there was no evidence that the germs lodged in the employee's arm in the course of employment and no connection was shown between the employment and the infection following vaccination. The present case is readily distinguished from the Krout case, the court said. There the vaccination was by a public agency, independent of the employer and the employment. Here the vaccination was performed by the company's physician and submitted to by the employee under the direct order of the company. Neither the employee nor the company was under the compulsion of public authorities. The vaccination occurred in the course and out of the employment.

The vaccination wound itself was not an accident because it was not an "unforeseen event." Vaccination is usually harmless, but when infection results therefrom the infection is an accident. Of course, no one could testify that he saw a germ enter the wound. The most that could be done would be to state the condition which would render the infection probable or possible. No testimony was introduced to indicate how or when the infection occurred, or to show its cause. It was agreed, however, that the infection was an effect of the vaccination, and this agreement ties the accident of infection to the act of vaccination as occurring in the course of employment.

The award of compensation was accordingly affirmed.

Society Proceedings

COMING MEETINGS

American Society for the Study of Disorders of Speech, Chicago, December 30-January 1. Dr. Sara M. Stinchfield, Mount Holyoke College, South Hadley, Mass., Secretary.

American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.

American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.

Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

20: 1179-1273 (Nov.) 1930

Incidence of Jake Paralysis in Oklahoma. D. T. Bowden, L. A. Turley and H. A. Shoemaker, Oklahoma City.—p. 1179.
Sanitary Features of Irrigation. J. H. Rider, Tucson, Ariz.—p. 1187.
Control of Thermophilic Bacteria in Pasteurizing Plants. M. W. Yale and R. S. Breed, Geneva, N. Y.—p. 1192.
Sickness Records in School Hygiene. J. Downes, New York.—p. 1199.
Peep into West Indian Medical History. J. A. Ogilvie, Porus, Jamaica, B. W. I.—p. 1207.
Bacteriologic Study of Grade A Pasteurized Milk. C. Brooks, New York.—p. 1209.
Incubation of Completed Kahn Test. N. Nagle and J. Lazarov, St. Louis.—p. 1216.
Mobile Milk Laboratories. T. Parran, Jr., Albany, N. Y.—p. 1219.

Archives of Internal Medicine, Chicago

46: 553-740 (Oct.) 1930

*Resuscitation of Stopped Heart by Intracardiac Therapy. A. S. Hyman, New York.—p. 553.
*Diabetes Mellitus: Is Climate Responsible Factor in Etiology? C. A. Mills, Cincinnati.—p. 569.
*Id.: Sugar Consumption in Etiology. C. A. Mills, Cincinnati.—p. 582.
*Blood Platelets: Improved Indirect Method for Enumeration. I. Olef, Boston.—p. 585.
*Tropical Sprue: Thirty-Six Cases. E. A. Baumgartner and C. H. Jewett, Clifton Springs, N. Y.—p. 597.
*Arteriovenous Difference in Blood Sugar Content. B. Y. Glassberg, St. Louis.—p. 605.
Nature of Graves' Disease. E. Moschcowitz, New York.—p. 610.
*Oxygen and Carbon Dioxide Content of Blood from Internal Jugular and Other Veins. W. G. Lennox, Boston.—p. 630.
Pulmonary Tuberculosis: Treatment in Allergen-Proof Chambers. W. Storm van Leeuwen, Leiden, Holland.—p. 637.
Specific Effect of Bile Salts on Pneumococci and on Pneumococcus Pneumonia. E. E. Ziegler, Northport, N. Y.—p. 644.
*Appearance Time of T Wave Changes in Electrocardiogram Following Acute Coronary Occlusion: Two Cases. L. M. Hurxthal, Boston.—p. 657.
Evaluation of Expulsion of Enemas as Criterion of Intestinal Obstruction. O. H. Wangensteen and R. O. Goehl, Minneapolis.—p. 669.
*Primary Carcinoma of Lungs with Metastases to Central Nervous System. C. Davison and W. A. Horwitz, New York.—p. 680.
Peripheral Arterial Disease in Polycythemia Vera. G. E. Brown and H. Z. Giffin, Rochester, Minn.—p. 705.
*Acute Monocytic (Histiocytic) Leukemia. W. Dameshek, Boston.—p. 718.

Resuscitation of Stopped Heart by Intracardiac Therapy.—Hyman asserts that the success of the intracardiac injection procedure for the resuscitation of the stopped heart is apparently due more to the effect of the puncture wound made in the wall of the heart than to the chemical substance injected. The puncture wound made by the injecting needle becomes a focus of increased irritability from which a stimulus for myocardial contraction may be developed. The first contractions of the heart after injection are always extrasystoles. The initial extrasystolic arrhythmia may give way quickly to a normal sinus rhythm, with prompt recovery on the part of the patient. However, when the period of anoxemia has been so prolonged or so intense that there is considerable disturbance in the electrodynamic factors controlling myocardial contraction, the initial extrasystolic arrhythmia may persist and may be quickly followed by a rapid sequence of ectopic beats. Such a condition leads to pathologic fatigue of the ventricles, which may be followed by ventricular fibrillation. Ventricular fibrillation is an extremely hazardous disturbance of the heart and is usually accompanied by immediate collapse of the circulation and death of the patient. This phenomenon explains the secondary collapse of the circulation often seen following what has apparently been a successful resuscitation of an asystolic heart. It is suggested, therefore, that the intracardiac puncture be made into the right auricle instead of into the ventricles as is now practiced.

Is Climate Responsible Factor in Etiology of Diabetes Mellitus?—Mills feels that one can scarcely avoid the conclusion that climate is, in part at least, responsible for the incidence of diabetes in all races. The regions possessing the most changeable and stimulating climate are the ones with the highest incidence of diabetes. In some of these, it is true, life is intense and complex, and the sugar consumption high, indeed; but in certain others, equally stimulating, almost the same frequency of diabetes is seen without the high sugar consumption to which it is attributed. One is inclined to attribute the increase in diabetes and consumption of sugar to the same cause, namely, overstimulation by a highly changeable climate, leading to a desire for the sugars as readily available producers of energy, but also leading to an increase in diabetes whether this desire for sweets is satisfied or not. The increase is probably much more marked when the prosperity of the people permits them to indulge this desire without stint. Prosperity may also act by lessening the physical effort required, thus making the intake of sugar still more excessive so far as physiologic needs are concerned.

Sugar Consumption in Diabetes Mellitus.—Mills states definitely that consumption of sugar as such is not related in a causal way to the death rate from diabetes.

Improved Indirect Method for Enumeration of Blood Platelets.—The method devised by Olef for the enumeration of platelets adheres to the leading principles that must be taken into consideration in counting platelets: (1) avoidance of contact between the undiluted blood and glassware or metal, (2) mixing of the freshly drawn blood as quickly as possible with the preserving fluid and (3) avoidance of all unnecessary manipulations of the blood. It dispenses with the use of the graduated pipet and counting chamber. It eliminates the errors resulting from the inclusion in the platelet count of degeneration products of erythrocytes ("Arnold bodies") and of finely particulated foreign matter. The results obtained are higher than ever previously obtained by similar methods.

Tropical Sprue.—In sixteen of thirty-six cases reported by Baumgartner and Jewett, the blood picture was similar to that in pernicious anemia; in all but four the condition could be conclusively shown not to be pernicious anemia (Addison), because free hydrochloric acid was found in the stomach, a low blood calcium with or without tetanic reactions was present, or a definitely large dilated colon occurred, which they believe is a characteristic of sprue and is not found in pernicious anemia. Several cases showed a severe secondary type of anemia. Improvement in the general physical condition with a definite return of the appetite almost always occurs with a restriction of carbohydrates and fats in the diet. Liver is valuable as treatment in the severely anemic cases frequently found.

Arteriovenous Difference in Blood Sugar Content.—Glassberg believes that it is not justified, on the basis of present knowledge, to attach a diagnostic significance to the arteriovenous difference in blood sugar content. It remains to be determined whether diabetic patients can be regrouped into two therapeutic or prognostic groups depending on whether the arteriovenous difference in blood sugar content lies within or below the range determined as normal.

Oxygen and Carbon Dioxide in Blood from Internal Jugular and Other Veins.—Lennox measured the oxygen and the carbon dioxide content of the blood from an artery and from various veins in a large series of cases. The gaseous content of blood from the femoral vein was found to be the same as that of blood from a cubital vein. In sharp contrast, blood from the internal jugular vein was more reduced and blood from the external jugular less reduced than from a cubital vein. These statements are true for average values. Measurements for individual patients varied widely. In a series of fifty-one patients, the average corrected respiratory quotient for blood from a cubital vein was 0.84 and from the internal jugular vein, 0.9. More sugar disappeared from the blood in its passage through the brain than in its passage through the arm. The former of these observations suggests that, in the metabolism of the human brain, carbohydrates are unusually important.

T Wave Changes in Electrocardiogram in Coronary Occlusion.—Experimental work cited by Hurxthal shows that increased amplitude of the T wave follows ligation or injury to the muscles supplied by a coronary artery; cooling causes depression of the T wave. Two cases are reported in which records were obtained before and after attacks. One case showed an upright T wave in all leads one hour after the onset of the attack, later followed by depression, whereas the record six days before the attack showed an inverted T wave in lead I. The second case showed a distinct but not diagnostic change one hour and fifteen minutes after onset. It is suggested that electrocardiographic observations be made at more frequent intervals following acute coronary occlusion. Such observations may prove of distinct value in diagnosis.

Carcinoma of Lungs with Metastases to Central Nervous System.—A group of 12 cases selected from 109 in which the condition was diagnosed as primary carcinoma of the lung was studied by Davison and Horwitz from the point of view of metastases of the central nervous system. Three cases showed symptoms of the spinal cord due to compression following invasion and destruction of the vertebra by the metastases. Of 109 cases of primary carcinoma of the lungs investigated, 11 per cent showed involvement of the central nervous system. One of the cases came to necropsy and revealed compression and distortion of the cord without circulatory interference. The onset in most of the cases showing neurologic signs came on suddenly. The most frequent histologic types of primary carcinoma of the lung with or without metastases to the central nervous system were those derived from the bronchi.

Acute Monocytic (Histiocytic) Leukemia.—Two cases are presented by Dameshek in which the diagnosis of acute monocytic leukemia was made. Supravital staining of the blood served to confirm the diagnosis of the type cell, the histiocyte. A review of the literature on the subject is presented. Since the conception of the third form of leukemia is linked intimately with the studies on the reticulo-endothelial system and on the monocyte, these subjects are discussed in some detail. The monocyte appears to be a distinctive cell directly derived from the reticulo-endothelial system. Various disorders of this system have been described: abnormal storage (Gaucher's disease, Niemann-Pick's disease, xanthomatosis); irritations due to infections (monocytosis); tumor growth (endothelioma, reticuloma), and proliferation (leukemia). The proliferative lesions—reticulo-endotheliosis—may be leukemic or aleukemic. Leukemic proliferation results in the clinical entity known as monocytic leukemia. It is thought, therefore, that the third type of leukemia should be added to the two accepted types. Though apparently much rarer than either myelogenous or lymphatic leukemia, clear-cut cases of monocytic leukemia at times appear and should not escape recognition.

Colorado Medicine, Denver

27: 413-454 (Nov.) 1930

Physiology of Pulmonary Atelectasis. H. Sewall, Denver.—p. 415.
*Pathology of Atelectasis and Relation to Pulmonary Infection. W. C. Johnson, Denver.—p. 419.
Roentgen Diagnosis. K. D. A. Allen, Denver.—p. 424.
*Atelectasis: Clinical Signs, Symptoms, Differential Diagnosis and Treatment. W. B. Yegge, Denver.—p. 432.
Treatment of Atelectasis. P. J. Connor, Denver.—p. 435.
Bronchoscopic Diagnosis and Treatment of Massive Atelectasis. T. E. Carmody, Denver.—p. 437.
Arachnoidism. D. Prey, Denver.—p. 440.

Pathology of Atelectasis and Relation to Pulmonary Infection.—Two fatal cases of bilateral postoperative atelectasis are reported by Johnson. He asserts that atelectasis, especially of the patchy or lobular variety, is a common finding at necropsy, but there have been comparatively few postmortems in cases of postoperative massive collapse. The most satisfactory theory regarding the latter condition is that it is due to a combination of bronchial obstruction with diminished force of respiration. The conditions found in necropsies have not been constant. Bronchial obstruction has been present in some and absent in others. Two necropsies are reported in cases of bilateral postoperative massive collapse in which no obstruction could be found. Atelectatic lung tissue in itself is probably no more susceptible to infection than normal lung, but, if the atelectasis is produced by obstruction with material containing virulent organisms, infection may spread into the obstructed lung with resultant pneumonia.

Atelectasis.—Yegge bases a diagnosis of this condition on the following: In cases that have no history of a chill, and have a sudden onset with dyspnea, cyanosis, rapid pulse and respiration, with fever, a white count between 15,000 and 20,000, and physical signs showing a displaced apex beat toward an area of dulness that at one time shows bronchial breathing and at another decreased breath sounds with a compensatory emphysema in the contralateral lung, and if the sputum is mucopurulent with no blood, one must think of atelectasis. The most conclusive sign in atelectasis is the shifting of the mediastinal structures toward the affected side in unilateral cases.

Delaware State Medical Journal, Wilmington

2: 167-184 (Oct.) 1930

Historical Outline of Medicine. I. J. MacCollum, Wyoming.—p. 167.
Klair Law. C. P. White, Wilmington.—p. 169.

Endocrinology, Los Angeles

14: 209-308 (July-Aug.) 1930

New Concepts Concerning Pathogenesis of Obesity and Problems of Basal Metabolism. H. Bernhardt, Berlin, Germany.—p. 209.
Effect of Insulin on Rate of Dialysis of *Diabetic Blood Sugar.* I. S. Kleiner, H. Birnkrant and T. Rothman, New York.—p. 226.
Cortin, Vital Hormone of Suprarenal Cortex. F. A. Hartman, Buffalo, N. Y.—p. 229.
Effects of Growth Promoting and Gonad Stimulating Principles of Anterior Lobe of Pituitary on Basal Gaseous Metabolism in Rat. M. O. Lee and J. Gagnon, Boston.—p. 233.
Endocrine Influence on Menstruation. A. W. Rowe, Boston.—p. 243.
Ligation of Tail of Pancreas in Juvenile Diabetes. G. de Takáts, Chicago.—p. 255.
Practicability of Ovarian (Auto-, Homo- and Hetero-) Transplantation. M. Thorek, Chicago.—p. 265.
Relation of Weight to Diabetes. H. J. John, Cleveland.—p. 282.

Iowa State Medical Society Journal, Des Moines

20: 447-494 (Oct.) 1930

Head Injuries: Results Obtained with Dehydration in Forty-Eight Consecutive Cases. T. Fay, Philadelphia.—p. 447.
Public Health Survey of Iowa. A. J. McLaughlin, Chicago.—p. 467.
Sacro-Iliac and Sacrolumbar Sprain. L. J. Miltner, Iowa City.—p. 473.
Narcolepsy and Cataplexy. C. Van Epps, Iowa City.—p. 476.

Journal of Experimental Medicine, Baltimore

52: 649-803 (Nov. 1) 1930

*Typhus Fever: II. Etiology of Mexican Typhus Fever. H. Zinsser and M. R. Castaneda, Boston.—p. 649.
*Id.: III. Lice and Bedbugs with Mexican Typhus Fever Virus. M. R. Castaneda and H. Zinsser, Boston.—p. 661.
*Experimental Fibrous Osteodystrophy (Osteitis Fibrosa) in Hyperparathyroid Dogs. H. L. Jaffe and A. Bodansky, New York.—p. 669.
Chemical Alterations in Blood of Rats Infected with Pathogenic and Nonpathogenic Trypanosomes. R. W. Linton, New York.—p. 695.
*Common Cold. A. R. Dochez, G. S. Shibley and K. C. Mills, New York.—p. 701.
Serology of Syphilis: I. Mechanism of Flocculation Reactions. H. Eagle, Baltimore.—p. 717.
Id.: II. Physical Basis of Wassermann Reaction. H. Eagle, Baltimore.—p. 739.
Id.: III. Explanation of Fortifying Effect of Cholesterin on Antigen Used in Wassermann and Flocculation Tests. H. Eagle, Baltimore.—p. 747.
Killing of Colon Bacilli by Roentgen Rays of Different Wavelengths. R. W. G. Wyckoff, New York.—p. 769.
Effect of Bacterial Variation on Factors Necessary for Phenomenon of Local Skin Reactivity to Bacterial Filtrates. G. Shwartzman, New York.—p. 781.

Etiology of Mexican Typhus Fever.—Zinsser and Castaneda have adduced strong evidence in favor of identifying the virus of Mexican typhus fever with the rickettsiae, or Mooser bodies, observed in the tunica lesions of Mexican typhus guinea-pigs. Were it not for the possible presence of a few remaining cell fragments in the washings, they would consider this evidence crucial proof.

Lice and Bedbugs with Mexican Typhus Fever Virus.—Experiments made by Castaneda and Zinsser have shown that the Mooser bodies, or rickettsiae, derived from guinea-pigs with Mexican typhus fever can survive in bedbugs after intracoelomic injection for ten days, remaining capable of infection. They have also succeeded in similarly infecting bedbugs by allowing them to feed on benzolized rats in whose blood rickettsiae had been shown to be present. Injection of the organs of such bedbugs five days after the last, nine days after the first infectious feeding into guinea-pigs produced typical Mexican typhus fever. Some of the guinea-pigs infected with such bedbug organs and passing through a typical typhus proved to be immune to subsequent inoculation with the European disease. Attempts to infect normal guinea-pigs by allowing infected bedbugs to feed on them or by rubbing the feces into the uninjured skin have so far been unsuccessful.

Experimental Fibrous Osteodystrophy in Hyperparathyroid Dogs.—Experiments made by Jaffe and Bodansky have shown that parathyroid extract-Collip can be injected into puppies in increasing amounts for long periods without fatal results. Thus time is allowed for bone changes to develop. Long continued injection leads to progressive decalcification and resorption of the existing bone, to fibrous replacement of the marrow, and to the production of the other features characteristic of osteitis fibrosa. Deformities eventually appear. It is safe to assume that the bone changes produced by hyperparathyroidization have the same pathogenesis as those observed in clinical cases believed to be instances of hyperparathyroidism —that is, cases with a negative mineral balance and decalcification of the skeleton.

Common Cold.—Human colds have been successfully transmitted by Dochez et al. to apes and human volunteers in 44 per cent of instances tried by means of filtered nasal washings obtained from colds.

Journal of Urology, Baltimore

24: 445-547 (Nov.) 1930

Primary Carcinoma of Ureter: Case. N. F. Ockerblad and F. C. Helwig, Kansas City, Mo.—p. 451.
Disposition of Ureteral Calculi at Crowell Clinic from 1915 to March 31, 1930. C. B. Squires, Charlotte, N. C.—p. 461.
Rapid Formation of Large Ureteral Calculus with Recurrent Bladder Stone. W. Crane, Oakland, Calif.—p. 463.
Indications and Contraindications for Nephrectomy in Renal Tuberculosis. W. M. Spitzer, Denver.—p. 469.
Clinical Evidence on Question of Movable Kidney. B. Lewis and G. Carroll, St. Louis.—p. 479.
Renal Neoplasm with Resection of Involved Colon: Case with Recovery. H. Sugar, Halle, Germany.—p. 487.
Squamous Cell Carcinoma of Kidney Pelvis. J. A. Bowen and G. A. Bennett, Boston.—p. 495.
Heminephrectomy for Calculus Pyonephrosis in Case of Bilateral Duplication of Ureters and Pelves. J. A. Lazarus, New York.—p. 503.
Pyelography Accident: Puncture of Wall of Ureter by Catheter. J. C. Sargent, Milwaukee.—p. 513.
Carcinoma in Diverticulum of Bladder. W. T. Briggs, Lexington, Ky. —p. 517.
Carcinoma in Diverticulum of Bladder: Case. R. D. Gill, Wheeling, W. Va.—p. 521.
Urinary Fistula Complicating Osteomyelitis of Pelvis: Case. N. W. Bourne, Milwaukee.—p. 531.
Chewing Gum in Male Urinary Bladder. G. H. Ewell, Madison, Wis. —p. 537.
Sarcoma of Prostatic Area in Infant of Four Months. R. J. Holmes and M. M. Coplan, Miami, Fla.—p. 539.

Medical Journal and Record, New York

132: 417-468 (Nov. 5) 1930

Flora of Intestinal Tract. A. E. Thomson, M. Einhorn and W. Coleman, New York.—p. 417.
Employment of Infiltration Anesthesia in Reduction of Fractures. C. O Rice, Minneapolis.—p. 423.
Cost of Medical Care. O. T. Osborne, New Haven, Conn.—p. 426.
Etiology and Mechanism of Diabetes Mellitus. J. A. Buchanan, New York.—p. 427.
Actinomycosis. H. P. Jacobson, Los Angeles.—p. 431.
Management of Hyperemotionalism and States of Anxiety. T. A. Williams, Washington, D. C.—p. 435.
Electrocardiograph Studies of Mentally Ill. J. A. Jackson and C. A. Zeller, Danville, Pa.—p. 439.
Advantage of Making Mental Survey of Patients Applying for Orthopedic Treatment. H. Keller, New York.—p. 445.
Prophylaxis in Mental Deficiency. E. A. Whitney, Elwyn, Pa.—p. 449.
Device for Obtaining Small Amounts of Blood Serum. A. R. K. Matthews and E. M. Watson, London, Canada.—p. 451.
Instrument for Illumination of Hirschman Anoscope. C. E Pope, Chicago.—p. 451.
Intravenous Administration of Morphine. M. Salzer, Cincinnati.—p. 452.
Technic of Nasal Cauterization and Effects on Sympathetic Nervous System. A. Leprince, Nice, France.—p. 452.
Electric Knife in Prostate Gland Operations. J. M. White, Montgomery, Ala.—p. 453.
Use of Bees in Medicine. E. Podolsky, New York.—p. 454.
Dr. Edward Jenner and the Canadian Pirate. W. R. Riddell, Toronto. —p. 456.

Military Surgeon, Washington, D. C.

67: 557-691 (Nov.) 1930

One Contribution by Army Medical Officers to Science. A. Agramonte. —p. 557.
Effects of Philippine Service on Officer Personnel. W. F. Rice, H. R. McKellar, J. S. Simmons, D. B. Brinsmade, O. A. Hanson, R. E. Elvins and E. G. G. Standlee.—p. 565.
Fundamental Principles of Physical Therapy. W. J. Tindall.—p. 575.
Tropical Veterinary Problems. N. S. Mayo.—p. 582.
Medical Service in Alaska. A. M. Brailsford.—p. 585.
Rodent Destruction. G. V. Rukke.—p. 592.
Dracontiasis: Case. H. P. Makel and V. T. De Vault.—p. 600.
Epidemic of Cerebrospinal Meningitis. J. W. Smith, Jr.—p. 605.
Multiple Valvular Heart Disease Complicated by Scarlet Fever: Case. D. C. Absher.—p. 615.
Undulant Fever in Territory of Hawaii. M. Ashford and E. Quinnell. —p 617.
First Cases of Jamaica Ginger Paralysis in United States Army. E. E. Hume.—p. 621.

Minnesota Medicine, St. Paul

13: 775-854 (Nov.) 1930

*Use of Tannic Acid in Burns of Children. E. C. Davidson, Detroit.—p. 775.
Early Diagnosis of Carcinoma of Stomach. L. G. Rigler, Minneapolis. —p. 784.
Early Diagnosis and Treatment of Malignant Conditions of Mouth and Lips. F. A. Figi, Rochester.—p. 788.
Early Diagnosis of Cancer of Uterus. W. A. Coventry and R. J. Moe, Duluth.—p. 793.
Diagnosis of Malignant Conditions of Colon. F. W. Rankin, Rochester. —p. 796.
Early Diagnosis and Treatment of Malignancy of Breast. O. J. Campbell, Minneapolis.—p. 803.
Malignant Lesions of Kidneys, Bladder, Prostate Gland and Testes. W. Walters, Rochester.—p. 808.
*Effect of Liver and Liver Extract on Symptoms and Signs Referable to Nervous System in Pernicious Anemia. B. M. Baker, Jr., J. Bordley, III, and W. T. Longcope, Baltimore.—p. 815.
*Treatment of Psoriasis Vulgaris with Intravenous Administration of Acriflavine. S. E. Sweitzer and P. K. Allen, Minneapolis.—p. 818.
Extra-Uterine Pregnancy. J. C. Masson, Rochester.—p. 822.
Surgery of Infant Abdomen. A. A. Zierold, Minneapolis.—p. 826.

Use of Tannic Acid in Burns of Children.—In 62 per cent of the cases admitted to the Children's Hospital of Michigan during the past three years, the burn was due to some one leaving a pail of hot water unprotected, the filling of a bathtub with hot water, and the child falling into it, or due to a child pulling a kettle of hot water, soup or coffee from a stove, spilling the contents over itself. This suggests that more than 60 per cent of the mortality and morbidity of burns in children is definitely avoidable and due to the negligence or carelessness of some one in leaving a pail of water unprotected or filling a bathtub with very hot water and waiting for it to cool, instead of drawing it at the desired temperature, or permitting a child to play around a stove on which something is cooking. The second important causative factor is playing with matches or around a bonfire. Twenty-five per cent of the cases were of this origin. Davidson describes the treatment employed in these cases and commends highly the use of tannic acid because it lessens toxemia, is analgesic and prevents the loss of body fluid; secondary infection is markedly limited by the absence of a favorable nidus for bacterial growth; scar tissue formation has been less marked than that observed after treatment by other methods; the protective layer of coagulated protein forms a scaffold for the growth of the young epithelial cells over the denuded area.

Effect of Liver and Liver Extract in Pernicious Anemia.—Forty-four cases of pernicious anemia, in which there were symptoms referable to changes in the central nervous system, have been treated by Baker et al. by liver or a combination of liver and liver extract. Of twenty-three cases followed for more than six months, improvement in symptoms and signs has occurred in 55.17 per cent. In twenty-one cases treated for less than six months, improvement was noticed in only 31.25 per cent. In eight cases of outspoken combined degeneration, treated for more than ten months, there was improvement of symptoms and signs in 58.9 per cent. The authors emphasize that it is essential that large quantities of liver, or liver and liver extract, be employed over long periods of time. When the amount of liver is much reduced or is dispensed with, relapses may occur promptly. It seems probable that in pernicious anemia the myelin degeneration may occur in the peripheral nerves and brain, as well as in the spinal cord, and that some of the symptoms and signs that undergo improvement are referable to a peripheral neuritis.

Treatment of Psoriasis Vulgaris with Intravenous Administration of Acriflavine Hydrochloride.—Twenty cases of psoriasis vulgaris treated with intravenous injections of acriflavine hydrochloride are reported by Sweitzer and Allen. All but three cases of the series showed clinical improvement and in four cases the results were striking.

New York State Journal of Medicine, New York

30: 1271-1332 (Nov. 1) 1930

Problems in Child Guidance. E. K. Clarke, Rochester.—p 1271.
Spinal Anesthesia. L. F. Simpson, Rochester.—p. 1275.
Management of Chronic Sinus Disease. W. V. Mullin, Cleveland—p. 1280.
Health Services in Colleges and Universities of New York State. O. W. H. Mitchell, Syracuse.—p. 1283.
Blackwater Fever and Urologic Aspect: Case. C. M Del Valle, New York.—p. 1287.

Ohio State Medical Journal, Columbus

26: 889-976 (Nov. 1) 1930

Fads and Fancies in Obstetrics and Gynecology and Their Cost. J. O. Polak, New York.—p. 909.
Autonomic Imbalance and Hyperthyroidism. L. A. Levison, Toledo.—p. 913.
Brachial Plexus Palsies. J. H. Nichols, Cleveland.—p. 921.
Treatment of Glaucoma Without Operation. W. H Snyder, Toledo.—p. 927.
Efficacy of Pasteur Treatment. L. W. Childs, Cleveland.—p. 931.

Philippine Islands Medical Assn. Journal, Manila

10: 357-406 (Sept.) 1930

*Basal Metabolism of Filipinos. M. Ocampo, N. Cordero and I. Concepcion, Manila.—p. 357.
Nature and Administration of Ideal School Medical Service. P. I. de Jesus, Manila.—p. 366.
*Treatment of Typhoid Fever by Agostinelli's Method. L. Guerrero and P. Ignacio, Manila.—p. 370.
Hydrocele of Left Scrotum with Complicating, Irreducible Direct Inguinal Hernia in Child One and a Half Years of Age. H. P. Clapp and R. L. Teopaco, Baguio, Mountain Province.—p. 376.
Vital Capacity Standard for Use Among Filipino Men. N. Cordero and M. Ocampo, Manila.—p. 387.

Basal Metabolism of Filipinos.—The metabolism of eighty-eight men and sixteen women was determined by Ocampo et al. by the Benedict-Roth portable metabolism apparatus and found to be —7.8 and —9.3 per cent, respectively, lower than the accepted "Aub-Du Bois Standard." Observations of basal metabolism on two Filipinos while in a temperate climate show no appreciable difference from those made while in the Philippines. The bearing of the present report on the question of racial and climatic factors in metabolism is discussed.

Treatment of Typhoid by Agostinelli's Method.—Forty patients with typhoid were placed under Agostinelli's method of treatment by Guerrero and Ignacio. Fourteen had positive blood culture and the rest had clinical typhoid. Thirty-two recovered; two were unimproved; one improved; five died. The average length of time that these patients remained febrile without treatment was 15.5 days, which means that the disease had already completely developed before they came to the hospital. The average number of days of treatment during the febrile period was 11.5 days, which is probably shorter than the length of ordinary treatment. This agrees with Agostinelli's observation. The average length of the total febrile period was 27.5 days, which is two or three days shorter than the usual duration, since they have observed that about thirty days is the usual febrile period. This does not agree with the observation of Agostinelli that the duration of the disease is shortened to about one half. In one third of the cases there was immediate temporary lowering of the temperature after the first injection, and in some cases the temperature became intermittent in character. Ten of the patients developed complications, and four of them died. Guaiacol and camphor did not seem to have attenuated these complications. Two patients had relapses but recovered under the same treatment. There were no untoward effects of importance. The mortality rate was 12.5 per cent, which was a little lower than that observed in cases under the ordinary treatment. The adjuvant treatments given consisted of horse serum, tincture of digitalis and epinephrine. These were used only when extremely necessary. The authors feel that whatever encouraging results were obtained, such as the slight shortening of the duration of the disease and the lower mortality rate, should not be attributed directly to the effect of the drugs, because it has been their experience that the severity of typhoid may vary from year to year. Agostinelli's technic is as follows: For the first two days, no matter in what period of the disease, hypodermic injection of guaiacol and camphor, 20 cg. each in 1 cc. of olive oil, is given three times a day. From the third day, the dose of each drug is increased to 30 cg. and is given at the same hours. Injections are given as long as there is fever and continued the three days of convalescence following, after which the original 20 cg. dose is resumed. After two days more without fever the morning injection is suspended, and after two days more the evening dose is omitted, until finally the remaining noon injection is discontinued after two more days of convalescence. No other form of treatment is employed and even hydrotherapy is entirely omitted.

Porto Rico. J. Pub. Health. & Trop. Med., San Juan

6: 3-145 (Sept.) 1930

Brucella Abortus in Porto Rico. P. Morales-Otero.—p. 3.
Intermediate Host of Fasciola Hepatica in Porto Rico. W. A. Hoffman.—p. 89.
Helminths in Southern Porto Rico. A. Serra.—p. 91.
Evidence Concerning Transmission of Leprosy. E. B. Vedder.—p. 106.

Radiology, St. Paul

15: 627-762 (Dec.) 1930

*Site of Predilection in Cross-Infection from Right to Left Lung. L. G. Cole, R. W. Morse, R. E. Pound, C. I. Headland and W. G. Cole, New York.—p. 627.
Improved Form of Standard Ionization Chamber. L. S. Taylor and G. Singer, Washington, D. C.—p. 637.
Skin Reactions Following Exposure to Roentgen Rays. E. A. Pohle and C. H. Bunting, Madison, Wis.—p. 647.
Polypi of Accessory Nasal Sinuses. F. J. Hodges, Madison, Wis.—p. 660.
Intravenous Pyelography. A. von Lichtenberg, Berlin, Germany.—p. 664.
Peak Voltage Measurement in Diathermy. A. Hemingway, Minneapolis.—p. 670.
*Cholecystography. M. Feldman, Baltimore.—p. 675.
Clinical Significance of Roentgenologic Findings of Nonmalignant Colon. S. A. Portis, Chicago.—p. 681.
Phytobezoar: Case. R. P. Potter, Marshfield, Wis.—p. 685.
Roentgen Therapy in Treatment of Acute Gonorrheal Arthritis. I. I. Kaplan, New York.—p. 691.
Brain Abscess from Welch Bacillus Infection: Case. V. W. Maxwell, Jackson, Miss.—p. 693.
Milliampere Minute Dose Table for Superficial Therapy. I. S. Trostler, Chicago.—p. 693.
Defects in Membranous Bones, Exophthalmos and Diabetes Insipidus (Christian's Syndrome): Case. T. P. Rothnem, Fargo, N. D.—p. 694.
Tracing of Films to Reduce Fire Hazard. M. A. Loebell, Zanesville, Ohio.—p. 697.

Site of Predilection in Cross-Infection from Right to Left Lung.—Cross-infection from the right to the left lung is apparently quite frequent in the presence of destructive infections of the right lung. Cole et al. found that the site of predilection within which cross-infection usually develops is the middle of the left lung, that part of the lung which is projected between the second and fourth ribs in the roentgenogram. Cross-infection is apparently due to the aspiration of infectious exudate and detritus present in the bronchial tree. The site of predilection is apparently in the path of least resistance beyond the termination of the left main bronchus. Posture of the individual may be a factor in this type of aspiration infection, but it seems probable that the sharp intake of breath following a prolonged cough or paroxysm of coughing is a more important factor in driving secretions present in the smaller bronchi into the air vesicles proper. Estimation of prognosis in any given case of pulmonary infection does not depend entirely on the progress or retrogression of the original areas of infection but must take into consideration whether or not there is secondary infection of other parts of the lung.

Cholecystography.—Oral cholecystography has proved a reliable test in the diagnosis of gallbladder disease in Feldman's experience. Eighty-six cases came to operation; of these, a total correct diagnosis was made in 94.2 per cent. The highest percentages of correct diagnoses occurred in cases of stones and in the gallbladders that failed to fill. The diagnostic errors occurred in the cases with poor filling or faint shadows.

Rhode Island Medical Journal, Providence

13: 161-174 (Nov.) 1930

Benign Pelvic Tumors Containing Endometrial-Like Tissue. B. E. Clarke, Providence.—p. 161.
Keratitis Neuroparalytica from Operation on Trigeminus. V. L. Raia, Providence.—p. 164.

South Carolina Medical Assn. Journal, Greenville

26: 247-270 (Oct.) 1930

Polycystic Disease of Kidneys. E. E. Herlong, Rock Hill.—p. 249.
Results of Faulty Diet. H. Smith, Greenville.—p. 252.
Coronary Thrombosis Simulating Surgical Abdominal Accidents. D. Jennings, Bennettsville.—p. 255.
Ocular Findings in Postencephalitic Parkinson Syndrome. I. Givner, New York.—p. 260.

Southwestern Medicine, Phoenix, Ariz.

14: 457-508 (Oct.) 1930

Hydatidiform Mole: Three Cases. C. E. Yount, Prescott, Ariz.—p. 457.
Significance of Hemoptysis. S. Pritchard and J. K. M. Gordon, Battle Creek, Mich.—p. 468.
Vincent's Infection. R. J. Groom, Santa Rita, N. M.—p. 472.
Preventive Medicine as Applied to Pediatrics. M. K. Wylder, Albuquerque, N. M.—p. 476.
Urologic Problems of Interest to General Practitioner. W. F. Martin, Battle Creek, Mich.—p. 479.
Factors of Safety in Thyroid Surgery. A. B. Cooke, Los Angeles.—p. 484.
Atypical Case of Neurosyphilis with Negative Serology. R. C. Kirkwood, Benson, Ariz.—p. 486.
Abscess of Liver and Atypical Amebic Dysentery: Case. R. B. Raney, Phoenix.—p. 493.

Surgery, Gynecology and Obstetrics, Chicago

51: 591-748 (Nov.) 1930

*Human Bite Infections of Hand. M. L. Mason and S. L. Koch, Chicago.—p. 591.
*Tumors of Parotid Gland. E. B. Benedict and J. V. Meigs, Boston.—p. 626.
Intrathoracic New Growths: Twenty-Four Cases. S. W. Harrington, Rochester, Minn.—p. 647.
*Effects of Electrocautery on Normal Tissues. J. Gottesman, D. Perla and J. M. Ziegler, New York.—p. 667.
*Perinephritic Abscess. M. F. Campbell, New York.—p. 674.
*Primary Carcinoma of Fallopian Tubes. W. W. Holland, Rochester, Minn.—p. 683.
Two-Stage Abdominoperineal Removal of Cancer of Rectum. F. H. Lahey, Boston.—p. 692.
*Surgery of Diabetes as It Concerns Gangrene of Lower Extremities and Carbuncles. U. Maes, New Orleans.—p. 700.
*Method of Reconstruction of Axilla for Contracture. J. H. Garlock, New York.—p. 705.
*Resection of Renal Pelvis for Hydronephrosis. Complications and Results. W. Walters, Rochester, Minn.—p. 711.
*Transplantation of Head and Shaft of Fibula to Humerus. M. Behrend, Philadelphia.—p. 717.
*Injuries to Semilunar Cartilages of Knee Joint. M. S. Henderson, Rochester, Minn.—p. 720.
Mechanism of Gluteal Gait. V. L. Hart, Ann Arbor, Mich.—p. 727.
*Hypertrophic Ostearthritis of Spine. J. C. Cottrell, Long Beach, Calif.—p. 731.

Infections of Hand from Human Bite.—Thirteen cases are reported by Mason and Koch. They state that bite infections are frequently prolonged in their course and difficult to clear up because the infection is usually introduced deeply into the tissues through a comparatively small wound, because of the character of the infection, because of the anatomic arrangement of the structures involved, and because of the relatively low resistance of fascia, tendon and bone to a mixed infection such as is caused by the organisms present in the mouth. Such infections when introduced into the tissues of the dorsum of the hand—the most common site of inoculation—tend to spread to definite areas, and this extension depends particularly on the exact site and depth of the primary inoculation and on the ease or difficulty with which the infectious material can escape to the surface. In the treatment of such infections an exact knowledge of the sites to which infection tends to spread is of importance. These are, in order of frequency, the subcutaneous space of the dorsum of the hand, the subfascial space of the dorsum of the proximal phalanx, the subaponeurotic spaces of hand and fingers that lie directly over metacarpal bones and proximal phalanges, the metacarpophalangeal joint, the fascial spaces of the palm, and the flexor tendon sheaths. If these sites are kept in mind, extension of infection can be recognized early and accumulations of pus drained before extensive necrosis of tissue has taken place. Unless such infections are drained early and adequately, bone, joint and tendon involvement are certain to occur and to lead to extensive impairment of function.

Tumors of Parotid Gland.—Benedict and Meigs have made a study of 225 cases with complete records as to pathology and end-results in eighty cases. They conclude: Benign tumors are more common than malignant tumors in the ratio of about four to three. Carcinoma is about twice as common as sarcoma. Cysts, melanotic sarcomas and adenomas are extremely rare. Mixed tumors are essentially benign but recur locally with great frequency. They rarely become malignant. Malignant parotid tumors are difficult to cure. Once the diagnosis is established, they advise early radical operation, including ligation of the external carotid artery and severing of the facial nerve whenever necessary. Patients with mixed tumors live indefinitely. Patients with malignant disease rarely live over two years after operation. Radium and roentgen rays are useful in the treatment of malignant parotid tumors but only as palliative procedures. In the treatment of benign parotid tumors, radiation therapy is of benefit in some cases, but they believe that excision is the treatment of choice. Carcinoma, sarcoma and malignant lymphoma may invade the parotid gland secondarily. Such cases usually end fatally, but one brilliant cure reported here justifies many extensive operations and emphasizes the importance of not giving up in the struggle against malignant disease.

Effects of Electrocautery on Normal Tissues.—In a study made by Gottesman et al. of the effect of the electrocautery incision in the skin, muscle, liver, kidney and spleen in normal adult albino rats, it was found that the electrocautery incision produces extensive necrosis, which acts as a foreign body with a resulting foreign body giant cell reaction. The advantages and the disadvantages of the electrocautery are discussed. The promiscuous use of the electrocautery is discouraged.

Perinephric Abscess.—A clinical study was made by Campbell of eighty-three cases of perinephric abscess. Etiologically the disease is of extrarenal or intrarenal origin and in the majority of cases bacterial metastasis is the mechanism. While the predominant symptoms are fever, loin or costovertebral angle pain, leukocytosis, and reflex urinary frequency, disease other than perirenal abscess may be suggested both subjectively and objectively. With this confusion of symptoms and often meager or indefinite clinical signs, the diagnosis is difficult. In a third of this series the diagnosis was made only at necropsy. Stereoscopic roentgenography is of especial value when it shows obliteration of the psoas muscle margin on the side of the abscess or lateral spinal curvature away from the abscess. Moreover, when complicating subphrenic abscess is present, elevation and fixation of the diaphragmatic dome with costophrenic sinus obliteration is diagnostic. Technical urologic examination may be of no aid and, as they have twice seen, may actually confuse the diagnosis. The treatment is surgical drainage, although rarely a patient recovers without operation. Complications are of frequent incidence and involve the pulmonary and genito-urinary systems in particular. Of fifty-four patients operated on for perineal abscess, eleven died, an operative mortality of 20.4 per cent. It is noteworthy that most of these fatalities were directly due to complications and the surgical treatment rather than to the primary abscess.

Primary Carcinoma of Fallopian Tubes.—Holland asserts that carcinoma of the fallopian tube is not as rare as was formerly believed. Inflammatory changes in the fallopian tubes do not deserve the etiologic significance relative to carcinoma attributed to them by many writers. The proper diagnosis of carcinoma of the fallopian tube can be arrived at only by macroscopic and microscopic examination. From sections examined it would seem that papillary alveolar and alveolar types are advanced stages of primary papillary malignancy. Nine cases are reported

Surgery of Diabetes.—The circular amputation of Kocher is recommended by Maes for diabetic gangrene of the lower extremities, and the gridiron incision is recommended for the treatment of carbuncles of the neck.

Method of Reconstruction of Axilla for Contracture.—In the method employed by Garlock for reconstruction of the axilla, done in stages and consisting essentially of the transplantation of skin flaps from a distance with maintenance of their blood supply through tubed flaps which are in turn utilized in the reconstructive procedure, vertical suture lines are avoided.

Resection of Renal Pelvis for Hydronephrosis.—In eleven cases of hydronephrosis, resection of the renal pelvis was performed by Walters. In eight cases (nine resections) the results of operation were excellent. In four of these cases hydronephrosis was bilateral, and the renal pelvis was large and infected. Bilateral resection was done in one case, with an interval of three months between operations, with excellent results. It has been almost two years since these operations were performed, and the patient has been completely relieved of all symptoms of renal retention or obstruction. This is probably the first successful case in which resection of bilateral infected hydronephrotic kidneys has been reported. In three additional cases of bilateral hydronephrosis, successful resection of one hydronephrotic renal pelvis has been performed. Three months will elapse before the other renal pelvis is resected. Cases of hydronephrosis in which successful results followed division of anomalous blood vessels or connective tissue sheaths are not included in this series of pelvic resections. Three cases in which resection of the renal pelvis was performed required secondary nephrectomy due to (1) persistent urinary fistula from occlusion of the ureter by postoperative infection around the ureter, and (2) pyelonephritis with cortical abscesses in two cases in which urine was being transmitted successfully from the resected renal pelvis to the bladder through the ureter. Complete recovery followed nephrectomy. When postoperative stasis occurred in the renal pelvis, it was successfully relieved by the introduction of an indwelling ureteral catheter through the cystoscope, where it was retained as long as the retention persisted. In spite of leakage of urine from the anastomosis with perirenal accumulation, results may be satisfactory provided drainage is sufficient.

Transplantation of Head and Shaft of Fibula to Humerus.—Behrend reports a case discussed here dealing with nonunion of a comminuted fracture of the humerus followed by a low grade type of osteomyelitis due no doubt to the various kinds of material used to hold the fracture in place to assist in the union of the two fragments of the humerus. Numerous trials at reduction were made but without success. Many types of splints in addition to plaster casts were used but failed to keep the fractured ends together. It required six open operations before success was attained. Behrend used Parham bands on two occasions, a Sherman plate, a tibial bone graft, and finally the fibular graft. The patient now has a good arm, the flail arm being replaced by a firm one—which is useful although the range of movement is somewhat reduced as compared with the normal. There is also some radial nerve palsy, which is mending slowly.

Injuries to Semilunar Cartilages of Knee Joint.—Henderson says that if repeated locking has occurred, or if the complaint cannot be relieved in primary cases by manipulation, and the condition is causing inconvenience to the patient, other things being equal, there is no reason for withholding the benefits of operation, and the offending meniscus should be removed. General anesthesia is favored, but the operation can be carried out under local anesthesia by the infiltration method about the knee or a combined caudal and spinal injection. The latter has the advantage over the infiltration method as it permits the use of the tourniquet. Of the 256 patients 238 have been traced; 183 are relieved of all trouble; 34 are improved, and 21 are not improved; thus, 91 per cent were cured or markedly improved. There have been no fatalities in the series, and no infection more serious than a low-grade skin infection in a few of the cases. There were forty-two cases in which, at the time of operation, the lesion present was not sufficient to account for the patient's symptoms, but because of the definite subjective symptoms the meniscus was removed. Thirty-five patients were traced. Thirteen (37 per cent) were cured, eight (23 per cent) were improved, and fourteen (40 per cent) were not improved.

Hypertrophic Ostearthritis of Spine.—Eighty unselected patients over 40 years of age were studied by Cottrell to determine the incidence of ostearthritis of the spine and the frequency of an associated radicular syndrome. Of these, 44 per cent showed evidence of hypertrophic ostearthritis. The average age of the patients was 55.6 years. The dorsolumbar region was the most often involved. Throat cultures from the forty-four showing ostearthritis did not yield *Streptococcus cardioarthritidis* in any instance. Focal infection was present in 56 per cent of all cases and in 68 per cent of cases showing ostearthritis. Twenty-five, 31 per cent, showed by neurologic examination evidence of pressure on the spinal nerve roots. In seventeen, 21 per cent, no symptoms were found attributable to the arthritis. Eight, 10 per cent, had the radicular syndrome in which the complaint was entirely due to this condition. Four of the eight had ostearthritis, whereas four had none visible to the roentgen ray. Of the eight patients with the radicular syndrome, five had been operated on without relief. In five the radicular syndrome simulated visceral disease.

Texas State Journal of Medicine, Fort Worth

26: 469-546 (Nov.) 1930

Headache. R. E. Parrish, San Antonio.—p. 477.
Periodic Health Examinations. W. S. Hanson, San Antonio.—p. 482.
Classification, Diagnosis and Treatment of Arthritis. J. W. Torbett, Marlin—p 485
Significance of Hematemesis A. B. Rivers, Rochester, Minn.—p. 492.
Diagnosis of Acute Intra-Abdominal Surgical Conditions. J. Becton, Jr., Greenville.—p. 499.
Perforated Peptic Ulcer. G. T. Hall, Big Spring.—p. 502.
Why Do We Drain Abdominal Cavity in Peritoneal Infection? E. P. Hall, Sr., Fort Worth.—p. 505.
*Malignant Growths of Stomach. P. Brindley, Galveston, and P. S. Wolfe, Abilene.—p. 510.
*Value of Complement Fixation Test in Tuberculosis. T. C. Terrell, Fort Worth.—p. 512.
Sexual Neurosis. F. H. Shaw, Marlin.—p. 513.
Recognition and Treatment of Poliomyelitis in Preparalytic Stage. C. O. Terrell, Fort Worth.—p. 517.
Specific Dilation of Capillaries, Alias Hyperthyroidism. I. L. Van Zandt, Fort Worth.—p. 520.
Treatment of Lobar Pneumonia. H. W. Cummings, Hearne, and H. W. Cummings, Jr., Houston.—p. 521.
Influenza: Comparative Experience in Two Epidemics. J. M. Frazier, Belton.—p. 523.
Idle Thoughts on Tissue Diagnosis. V. H. Keiller, Houston.—p. 525.

Malignant Growths of Stomach.—Among 2,612 necropsies reviewed by Brindley and Wolfe there were 57 instances of malignant growths involving the stomach, a percentage of 2.14. A study was made of the period of time intervening between the onset of symptoms and death. Of those cases in which this could be determined, 71.9 per cent of the patients lived less than a year after the symptoms began; 18.8 per cent lived between one and two years, and 9.3 per cent lived over two years. Approximately half of the patients whose previous history could be determined did not mention having any gastric trouble. In studying the mode of onset of the gastric disturbances they found that 78.6 per cent showed gradual onset of symptoms, while in 21.4 per cent the onset was sudden. The earliest symptoms given at the onset of the terminal illness were vomiting and pain, equally common; next in order of frequency were epigastric discomfort, weakness, and loss of weight. Pain was present sometime during the illness in 67.6 per cent of the cases. Food caused increase of pain in half the cases. Vomiting was present at some time during the course of the disease in approximately two thirds of the cases. Of those cases in which vomiting had occurred, 47.4 per cent gave a history of the vomitus at some time having been bloody or coffee ground in character. Constipation was present in 77 per cent; diarrhea in 11.5 per cent, while a normal condition of the bowels was present in 11.5 per cent of the cases. Physical examination revealed emaciation in 91.4 per cent of the cases; 5.77 per cent well nourished, and 2.9 per cent obese. Abdominal palpation revealed an epigastric mass in 45 per cent and tenderness in 37 per cent of cases. Summation of laboratory observations showed free hydrochloric acid 10 or less in 84.2 per cent. Total acidity was below 10 in 40 per cent of cases. Lactic acid was present in three fourths of the cases. Gross blood was present in a little more than a third, and occult blood in 72.3 per cent. Boas-Oppler bacilli were found in 40 per cent of cases; 71.4 per cent of the cases were diagnosed as gastric malignancy; 26.3 per cent were diagnosed as some other condition, while in one case no diagnosis was made. At necropsy, 90 per cent of tumors were found to be primary in the stomach. Of the other cases, two first appeared in the esophagus, one started as a melanosarcoma of the eye, and one as a sarcoma of the thigh. In three fourths of the cases the tumor site was in the pyloric region of the stomach and near the lesser curvature. Secondary deposits from primary growths in the stomach occurred in the following order of frequency: lymph nodes, 75 per cent; liver, 55 per cent; peritoneum, 22 per cent; lungs, pancreas and kidneys, each 17 per cent; omentum, 14 per cent; intestine, 10 per cent; diaphragm and pleura, each 8 per cent; bone, 6 per cent; esophagus, retroperitoneal glands and suprarenals, each 5 per cent; duodenum, 1 per cent. Microscopic examinations of the malignant tissues show an adenocarcinomatous arrangement of the cells to be slightly more frequent than a cell mass of simplex arrangement. In two cases mucinous degeneration of the tumor cells was present, these cases being typical colloid carcinomas.

Value of Complement Fixation Test in Tuberculosis.—Terrell has found that carefully conducted complement fixation tests should yield from 60 to 70 per cent positive reactions in cases of tuberculosis, depending on the stage of the disease. The test acts as a stimulus to more careful observation, and as an aid only when considered in conjunction with a complete history and physical investigation.

Wisconsin Medical Journal, Madison

29: 609-682 (Nov.) 1930

Paraffin-Wax Treatment of Burns. C. K. Cook, Madison.—p. 609.
Nontuberculous Pulmonary Disease Simulating Tuberculosis. A. L. Banyai, Wauwatosa.—p. 613.
Meningococcus Meningitis; Combined Cisternal and Lumbar Treatment. M. J. Fox, Milwaukee.—p. 620.
*Treatment of Diabetes Tested by Stress and Strain of Life. S. C. Fain, C. C. Edmondson and W. E. Nicely, Waukesha.—p. 623.
Physical Therapy in General Practice. J. S. Coulter, Chicago.—p. 627.
Meningioma of Sphenoid: Case. F. J. Hodges, Madison.—p. 632.
Cystadenoma of Gallbladder: Case. R. A. Kordenat, Chicago.—p. 634.
Acute Intestinal Obstruction Due to Large Gallstone: Case. J. A. Jackson and G. H. Ewell, Madison.—p. 637.
Recurrent Appendiceal Fistula Following Drainage of Appendiceal Abscess: Case. V. F. Marshall, P. L. Heitmeyer and M. E. Swanton, Appleton.—p. 639.

Treatment of Diabetes Tested by Stress and Strain of Life.—The kind of foodstuffs, rather than the number of grams and calories of food principles, has been the diet prescription used by Fain et al. for a number of years. The results have been so encouraging that they believe them unequaled. Foundation of the diet is green vegetables two or three times a day, fruits (preferably fresh fruits) twice a day, fresh meat (rather animal protein, whether fish, fowl, eggs or cheese), cream and butter. Cereals and potatoes are added if the tolerance of the patient for blood sugar producing foods will permit. Each serving of fruit is limited to an amount that contains approximately 12 Gm. of carbohydrate; vegetables, six or nine tablespoonfuls of 3 per cent three times a day and six or nine tablespoonfuls of 6 per cent twice a day. One or more of these vegetables should be raw. Two or three ounces of meat or its equivalent in fish, fowl, eggs or cheese three times a day; the fat, besides that in the meat daily, is given in 20 per cent cream and in butter given as such or in soup and on vegetables. Oil dressing is given on salad. To this is added for the diabetic patient, three times a day, one, two or three palatable muffins. For a muffin or muffins, a doughnut, cracker, piece of cake or some pleasing substitute may be given. Each muffin contains approximately 2 Gm. each of carbohydrate, protein and fat. If this is not enough food to keep the patient on his feet and at his usual occupation, potatoes and cereals are added to meet the energy requirements of the individual. If the patient can handle the maintenance amount of food for him and keep the urine sugar free and the blood sugar within fairly normal limits, insulin is not given. If the maintenance amount of food is not so taken care of, insulin is given once, twice or three times a day. With this outline of diet as a basis, it is only exceptional cases that require as much as 60 units of insulin a day. When dealing with an individual whose maintenance is below the ordinary diet as given here, the authors have found that it is most satisfactory to decrease the fat first and then, if necessary, the protein before any lowering of the fruits and vegetables is attempted.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 671-716 (Oct. 25) 1930

Birth of Chemical Biology. J. B. Leathes.—p. 671.
*Anesthesia for Operations on Gravid Uterus. H. W. Featherstone.—p. 676.
Diagnosis of Undulant Fever. G. S. Wilson.—p. 679.
Hydronephrosis Due to Kinking of Upper End of Ureter: Five Cases. R. P. Rowlands.—p. 681.
Significance of Reflex Action in Color Vision. F. Allen.—p. 683.
*Outbreak of Food Poisoning in Staffordshire: I. Clinical Manifestations. E. S. Clayton and V. E. Milne.—p. 684.
Id.: Bacteriologic Investigation. J. Menton.—p. 685.
Intestinal Obstruction: Two Cases. R. G. Clements.—p. 687.
Perforation of Duodenal Ulcer When Flying. F. Twigg.—p. 687.

Anesthesia for Operations on Gravid Uterus.—Featherstone is of the opinion that gas-oxygen is the best agent for general anesthesia for obstetrician and gynecologist. Spinal analgesia has an important place in the technic of cesarean section. Hysterectomy of the gravid uterus in the later stages of pregnancy is a severe procedure. Most frequently the operation is called for in the presence of concealed accidental hemorrhage, or for severe sepsis in the pelvic organs. It is one of the most anxious operations of surgery. The patient is toxic, suffering from shock, and bloodless. The more powerful anesthetic agents, chloroform and ether, disturb the patient too much; their use is followed by serious postoperative reaction, and pneumonia or failure of the heart or kidneys may follow. Spinal analgesia may produce a dangerous fall in blood pressure in a patient who is already nearly pulseless. Gas-oxygen is a most valuable aid. Eight cesarean hysterectomies were performed under gas and oxygen for concealed accidental hemorrhage; each patient was nearly in a dying condition when the operation was commenced. One patient died half an hour after the operation was completed; one died on the sixteenth day, but the remaining six recovered.

Outbreak of Food Poisoning in Staffordshire.—Clayton and Milne describe some characteristics of a hog cholera bacillus which was responsible for an outbreak of food poisoning. The main features were the presence of two subtypes, and the high serologic specificity of the cultures when the organisms were at first isolated. There were eight cases in this series with three fatalities.

2: 717-762 (Nov. 1) 1930

Sleep and Its Disorders in Childhood. H. C. Cameron.—p. 717.
Glioma Group Studied by Ordinary Histologic Methods. W. Boyd.—p. 720.
Value of Roentgen Diagnosis in Medicolegal Cases. A. H. Pirie.—p. 722.
*Tuberculosis and Public Health. A. S. M. MacGregor.—p. 724.
*Personal Experiences in Midwifery. R. K. Ford.—p. 726.
Syphilis of Nervous Parenchyma. R. B. Hawes.—p. 728.
Torsion and Gangrene of Tube Complicating Uterine Prolapse. J. B. G. Muir.—p. 730.
Atypical Forms of Cerebrospinal Fever. E. Thorp.—p. 731.

2: 763-806 (Nov. 8) 1930

Medical Aspects of Thoracic Surgery. R. A. Young.—p. 763.
Radium in Cancer Therapy. D. Quick.—p. 765.
Decerebrate Rigidity in Man. J. S. Manson and F. R. Ferguson.—p. 769.
Cyst of Urachus: Case. A. Ronald.—p. 771.
Organic Gastric Syphilis. D. Smith.—p. 773.
Large Cystic Tumor (Angio-Endothelioma) of Soft Palate. J. E. G. McGibbon.—p. 776
Delayed Operation for Traumatic Intracerebral Hemorrhage. D. K. Sabhesan.—p. 777.
Unusual Case of Stiff Knee. D Kyle.—p. 777
Suicide in Postencephalitis Epidemica. T. McC. Montford.—p. 778.
Raynaud's Disease: Case W. Broadbent.—p. 778.
Glandular Fever Case. L. S. Woolf.—p. 779.

Tuberculosis and Public Health.—MacGregor says that in Glasgow practically no impression is being made on the death rate from phthisis affecting young adults of either sex between 15 and 25 years of age. This type appears to have remained unaffected in both incidence and severity. On the other hand, a remarkable fall in phthisis at later ages has taken place in both sexes, most markedly among women. It would appear as if tuberculosis were rapidly declining as a chronic disorder of the middle-aged but remaining unaffected as an acute disorder of young adults. Till within recent years Scotland has had a relatively high incidence of nonpulmonary tuberculosis. For one thing, it is said that dairy herds in this country have ten times as much tuberculosis as those in America. Whatever is the reason, however, since the first decade of the century the death rates from these forms of the disease have declined at a more accelerated pace compared with the rate of fall for the pulmonary form. As regards mortality, tuberculous meningitis is one third, abdominal tuberculosis one fifth, and other forms two fifths of the rates then prevailing. Along with this, there has been noticeable a decided diminution in the severity assumed by the various forms of tuberculosis at the younger ages of life, applying particularly to glandular and abdominal disease, but also to bone and joint disorders, which are showing less tendency to rapid abscess formation, while amyloid disease is now seldom encountered. The greatest fall has taken place in abdominal tuberculosis—a fact of considerable significance, as this disorder is mostly bovine in origin. Although something has been accomplished under the Tuberculosis Order in eliminating grosser disease from among dairy herds, such a wholesale improvement can scarcely be credited to this cause. It appears much more likely that the greatly increased practice of pasteurization of ordinary city milk, to which from 80 to 90 per cent of the supply has been subjected for some years, has interposed a degree of protection against transmission of this form of tuberculous infection.

Personal Experiences in Midwifery.—After five years' experience with mercurochrome in glycerin, Ford considers that this is a reliable, harmless and absolutely efficacious antiseptic as far as the endometrium is concerned, and, possibly, for all mucous membranes. The suggestion is made that 1/100 *grain (0.6 mg.) of scopolamine in 2 cc. of sterile 50 per cent* magnesium sulphate solution is a safe and fairly effective analgesic for labor.

Journal of Pathology and Bacteriology, London

33: 849-1183 (Oct.) 1930

Importance of Venous Invasion in Development of Metastatic Tumors in Liver. R. A. Willis.—p. 849.
Spirillum Minus Derived from Spontaneous Infection in Mouse: Pathogenicity as Means of Differentiating It from Strains in Rat. J. A. W. M'Cluskie.—p. 863.
Bacteremia Following Operations on Urethra. F. J. F. Barrington and H. D. Wright.—p. 871.
Pharmacologic Action of Exotoxin of Staphylococcus Aureus. C. H. Kellaway, F. M. Burnet and F E. Williams.—p. 889.
Reactions of Cells in Pleural Effusions to Supravital Neutral Red. R. A. Hickling.—p. 913.
Reactions of Human Skin to Horse Serum. C. E. Kellett and H. D. Wright.—p. 917.
Effect of Immunization on Temperature Response in Rabbits. H. D. Wright.—p. 925.
*Staining of Calcium. G. R. Cameron.—p. 929.
*Pathologic Changes Found in Fatal Case of Psittacosis. G. H. Wilson.—p. 957.
Isohemagglutinins: Influence of Fetus on Titer of Mother's Blood During Pregnancy. K. Edgecombe.—p. 963.
Anaphylactic Responses of Guinea-Pig's Skin. C. E. Kellett.—p. 981.
Schilder's Encephalitis Periaxialis Diffusa in Rhesus Monkey. J. R. Perdrau.—p. 991.
*Persistent Eosinophilia. A. M. Drennan and J. H. Biggart.—p. 995.
Pathologic Action of Light. A. G. Levy.—p. 1003.
*Tuberculosis of Stomach: Case. E. R. Cullinan.—p. 1013.
*Influence of Liver Extract Effective in Pernicious Anemia on Diameter of Erythrocytes in Experimental Anemias. G. P. Wright and B. Arthur.—p. 1017.
*Sacral Chordoma with Widespread Metastases. R. A. Willis.—p. 1035.
Influence of Testicular Extract on Dermal Permeability and Response to Vaccine Virus. D. McClean.—p. 1045.
Necrotic Sequestration of Kidneys in Pregnancy (Symmetrical Cortical Necrosis). W. de M. Scriver and H. Oertel.—p. 1071.
Coal-Miner's Lung. S. L. Cummins and A. F. Sladden.—p. 1095.
*Pathogenesis of Experimental Poliomyelitis: Inoculation into Sciatic Nerve. E. W. Hurst.—p. 1133.
Types of Tubercle Bacilli Occurring in Sputum of Phthisical Persons. A. S. Griffith.—p. 1145.
Direct Platelet Counting. H. K. Goadby.—p. 1171.
Individuality in Size of Red Cells. C. Price-Jones.—p. 1173.

Staining of Calcium.—Alizarin in Cameron's opinion is a nearly specific stain for calcium. It reacts readily in vitro and in vivo with recently deposited calcium phosphate or carbonate, normal or pathologic, but often fails to stain older deposits. This limits its practical utility.

Pathology in Fatal Case of Psittacosis.—In the case described by Wilson the lung changes are those of a pneumonia of unusual type, which does not correspond to any ordinary pneumonia, whether occurring as a primary disease or as a secondary complication. The general picture is that of a septicemia accompanied by distinctive changes in the lungs. These are, in the order of their occurrence, congestion with abundant serous exudation, which ultimately becomes fibrinous; degeneration and desquamation of the epithelium lining the air vesicles and bronchi, and thrombosis of capillaries or actual necrosis of the walls of the air vesicles in areas where the damage is more severe, with hemorrhage in places. A relative absence of polymorphonuclear leukocytes is a striking feature and is consistent with the leukopenia observed clinically and with the microscopic appearances of the bone marrow. The histologic picture suggests that the changes in the lungs may be the result of intense toxic damage rather than an inflammatory reaction, but it is of course possible that this is an extreme example in which the marrow was almost completely inhibited and that less severe cases might show a different response. The occurrence of a terminal bronchopneumonia, however, shows that a leukocytic reaction to pyogenic infection was still possible, and as the changes in this area are so strikingly different from those in the main lesions it would appear reasonable to suggest that the lesion in psittacosis is characteristically not accompanied by reaction on the part of the polymorphonuclear leukocytes, except where secondary pyogenic infection has occurred. It would appear also that such changes as have been described are an adequate explanation of the peculiar "silence" of the lung that has been observed in typical cases. Bronchopneumonia may undoubtedly occur, but this is probably the result of secondary pyogenic infection and not an essential feature of the disease.

Persistent Eosinophilia.—A case of persistent eosinophilia with splenomegaly and massive infiltration of the iliopsoas muscles is described by Drennan and Biggart. A suggestion is made that the syndrome "persistent eosinophilia and splenomegaly" may possibly be a functional disease—an expression of an excessive response on the part of the eosinophil to some as yet unidentified irritant.

Tuberculosis of Stomach.—In the case reported by Cullinan, diagnosis was not possible during life. No primary focus of infection was discovered, nor were there other tuberculous ulcers in the intestinal tract. There was recent pleurisy with adhesions over both lungs. The surfaces of the lungs were studded with miliary tubercles, and the cut surfaces showed generalized miliary tuberculosis. No primary or old tuberculous focus was found in the lungs, and the bronchial glands were unaffected. On the lesser curvature of the stomach, near the cardiac end, was a shaggy soggy mass, like neither a simple nor a malignant ulcer, but looking as though it might be tuberculous. Along the lesser curvature was a chain of enlarged glands. In the cecum there was a transverse ulcer, but all the other abdominal organs appeared natural. It was evident that the miliary disease of the lungs was more recent than the lesion in the stomach, and an effort was made to find a primary focus but without avail.

Liver Extract Effective in Pernicious Anemia.—It is suggested by Wright and Arthur that liver extract acts in pernicious anemia by promoting the due degeneration of the megaloblastic phase of erythropoiesis.

Sacral Chordoma with Widespread Metastases.—The primary tumor in Willis's case was one of the largest, if not actually the largest, so far described. It weighed approximately 200 ounces (5.6 Kg.). Prolific remote metastases, *probably due to tumor invasion of the iliac veins,* were present in the lungs, heart, liver, spleen, kidneys, thyroid and skin. There were numerous exostoses of many bones. The possibility that these and the chordal tumor may both be expressions of a constitutional tendency to skeletal anomalies is discussed.

Pathogenesis of Experimental Poliomyelitis.—The course of poliomyelitis following intrasciatic inoculation is described by Hurst. The order of appearance of virus and lesions in the various regions of the central nervous system accords with the view already expressed that the axons are the main transmitting structures in the disease. The cerebrospinal *fluid plays a subsidiary part in the dissemination of the* virus, which may on occasion be detected in the fluid.

Lancet, London

2: 945-1000 (Nov. 1) 1930

*Value of Alkalis in Treatment of Chronic Nephritis. A. A. Osman.—p. 945.
Burns and Scalds. C. Donald.—p. 949.
Paralysis of Capillary Blood Vessels of Hand Following Wounds of Forearm. H. Burrows.—p. 952.
Effect of Added Iron on Hematopoietic Properties of Dried Milk. A. L. Bacharach.—p. 957.
Manganese in Foodstuffs. A. E. Boycott and G. R. Cameron.—p. 959.
Intravenous Morphine in Coronary Thrombosis. F. Moor.—p. 959.

Value of Alkalis in Treatment of Chronic Nephritis.—Osman summarizes the results of this method of treatment in certain types of chronic nephritis during the past seven years. He says that alkalis may be used with advantage in many types of nephritis under certain circumstances, for either their prophylactic or their therapeutic value. They should never be used except with some specific object in view. The frequent practice of giving "small" doses in the hope that they "might do some good" is bad medicine and should be condemned. He reports only forty cases, which represent only a small proportion of those treated by this method and are, in fact, the first forty so treated in which the history of the illness was long enough (seldom less than six months, and in one case as long as fourteen years) to make spontaneous remission or improvement during treatment unlikely. With few exceptions, the symptoms were sufficiently severe to necessitate confinement to bed for at least three months before treatment was commenced. Further, most of them had previously been treated by the usual methods—such as sweating, purgation, salt depletion, urea, high protein diets, thyroid extract, purine diuretics, or decapsulation—without conspicuous success. The results of treatment have been judged chiefly by the effect produced on the immediate symptoms and the subsequent benefit to the patient. The mortality in the forty cases of this series, in a period of five years, was seventeen, or 37 per cent, while in a group of the first forty cases of as nearly the same types as could be found in the records over a similar period, treated by other methods, it was nineteen, or 43 per cent. The similarity in the mortality rates of the two groups is interpreted as signifying that the cases selected for this review constitute a fair sample of severe types of chronic nephritis. The chief value of alkalis in the treatment of nephritis consists in their action in promoting diuresis and thus ridding the tissues of excess water or edema. Therefore, they have been found of most use in cases of chronic nephritis accompanied by considerable amounts of edema and oliguria—i. e., in chronic parenchymatous and chronic "mixed" nephritis, in which dropsy not due to an associated heart failure is the most prominent symptom. As some decrease in the plasma bicarbonate appears to be the rule in all types of chronic nephritis, it seems reasonable to suppose that alkalis, by increasing the blood bicarbonate, might be of some value. It has also been found that if alkalis, in the form of equal parts of potassium citrate and sodium bicarbonate, are given by mouth, in amounts sufficient to raise the plasma bicarbonate to, and to maintain it at, a normal level under all circumstances of diet and exercise, it is often possible to induce a diuresis sufficient in degree and duration to rid the body entirely of edema. If, after the edema has subsided, the dose is readjusted to that which will, under the new conditions, maintain the plasma bicarbonate at a normal level, the edema often does not return. Of the forty cases, six were labeled acute parenchymatous nephritis. The remaining cases were of the chronic parenchymatous or chronic "mixed" varieties, and all the patients were suffering from marked edema, which had been persistently present since the onset of the illness. Cases in which there was a history of spontaneous remission of the edema have not been included. In thirty-six of the forty cases, a sufficient diuresis was produced and maintained to cause complete disappearance of the edema. In only four cases did the treatment fail to influence the edema at all. Of the thirty-six cases in which the edema disappeared under treatment, it recurred in four, while active treatment was still being pursued. In these cases it was not found possible to maintain a sufficient diuresis for a long enough period to control the edema. In thirty-two out of the forty cases, therefore —i. e., in 80 per cent—it was possible to obtain complete and lasting control over this symptom. The average period occupied by the treatment was from six to eight weeks.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 1435-1481 (Oct. 20) 1930

Syncopes of Vasomotor Origin. C. Lian.—p. 1443.
Inoculation of Blood and Urine of Two Patients with Lymphogranulomatosis. M. Loeper and A. Lemaire.—p. 1444.
**Postvaricella Purulent Meningitis with Cortical Reaction.* Laignel-Lavastine, A. Miget and S. Constantinesco.—p. 1448.
Pyloric Tumor of Prolonged Febrile Evolution. F. Masselot.—p. 1453.
Contralateral Pneumothorax. E. Mantoux.—p. 1456.
Action of Ultraviolet Rays on Cholesterol Content of Serum. M. Loeper and R. Degos.—p. 1458.
*Vaccinotherapy in Acute Articular Rheumatism. M. Loeper and R. Degos.—p. 1463.
Gonococcic Reaction in Diagnosis of Subacute and Chronic Rheumatism. A. Léri, A. Urbain, J. A. Lièvre and J. Weill.—p. 1471.

Postvaricella Purulent Meningitis with Cortical Reaction.—Laignel-Lavastine et al. report a fatal case of purulent meningitis with cortical reaction, subsequent to varicella. The patient, a youth, aged 18 years, convalescent from a seemingly benign attack of varicella, presented a febrile meningeal syndrome with convulsions. The topography of the meningeal lesions, predominant in the anterior and lower parts of the left hemisphere, explains the special symptoms observed: frontal cephalalgia, more marked on the left, left ptosis with anesthesia in the region of the frontal nerve, and epileptiform attacks beginning in the right side of the face. The patient died within three days. There was no local source of infection that could explain the etiology of the meningitis. The hypothesis of a tuberculous origin was eliminated by examination of the cerebrospinal fluid for tubercle bacilli and by inoculation of guinea-pigs. Bacteriologic examination and cultures of the vesicles of the varicella did not reveal any microbial elements that could explain a theory of meningitis by distant secondary infection. It seems logical, therefore, to consider the meningitis in this case as the direct result of the varicella, probably caused by a neurotropic virus, independent of the particular conditions of virulence. The authors consider this case another example of the nervous localizations that are observed in rare instances during the course of or subsequent to varicella.

Vaccinotherapy in Acute Articular Rheumatism.—Loeper and Degos describe ten typical cases of acute articular rheumatism in which they used vaccine treatment. All the patients had resisted treatment by sodium salicylate. The method used was as follows: Preliminary intradermoreaction tests were made with streptococcus, staphylococcus, pneumococcus and gonococcus vaccines. In seven cases a definite positive reaction to one or more of the vaccines was observed; namely, one staphylococcic, one streptococcic, one gonococcic, one mixed streptococcic and gonococcic, and three streptococcic-staphylococcic. Six of the seven patients were cured by injections of the vaccines to which they had shown a positive intradermoreaction. The seventh, who had shown a rather mild reaction to streptococcus vaccine, was cured by a combination of sodium salicylate with the vaccine. The authors feel that these results justify making a preliminary intradermoreaction test in cases that do not yield to sodium salicylate so that vaccinotherapy may be employed when a positive reaction is secured.

Nourrisson, Paris

18: 273-336 (Sept.) 1930

History of Home for Needy Children of Paris. A. B. Marfan.—p. 273.
*Treatment of Habitual Vomiting and Congenital Stenosis of Pylorus. A. B. Marfan.—p. 289.

Treatment of Habitual Vomiting and Congenital Stenosis of Pylorus.—In Marfan's opinion, most cases of continuous vomiting in nurslings are either simple examples of a disease of habitual vomiting or are due to a congenital hypertrophic stenosis of the pylorus. Since the second diagnosis can be made only after clinical observation during several days and after roentgen examination, the best procedure is first to apply the treatment for ordinary habitual vomiting. This consists of careful attention to diet and general hygienic conditions and also of specific antisyphilitic and antiemetic treatment. It is necessary, above all things, to nourish the infant sufficiently to avoid dangerous conditions of inanition. The mother's milk is the best food in most cases, and only in rare instances does a child show absolute intolerance of it. Ass's milk is the next choice. If it is not available, however, separated cow's milk with a little sugar may be used, as well as various equivalent preparations of condensed or powdered milk. Bouillon and gruel of cereals and vegetables may be given to children more than 3 months of age. The meals should in general be small and frequent, the quantity of nourishment and the intervals between repasts being increased as the treatment progresses. The nourishment should usually be given with a spoon in order to determine the exact amount ingested and to avoid suction, and the liquid should be cold or even iced. In some cases, if the nourishment meets with complete intolerance when so administered, it is necessary to give it drop by drop on the infant's tongue. Extreme care should be taken to insure the most comfortable conditions for the patient—quiet, fresh air, soft light, often a complete change of environment. Since congenital syphilis is often the source of habitual vomiting in nurslings, antisyphilitic treatment, usually by mercury, should be given, which in many cases brings immediate relief. Antiemetic treatments such as enemas and antidyspeptic medicaments, especially bismuth subnitrate, are also valuable in ordinary cases. In the severe forms of the disease, antispasmodic medicaments should replace antidyspeptics; tincture of belladonna is recommended. If after about ten days the general treatment is of no avail, surgical intervention is usually necessary. If tubage shows a prolonged gastric stasis, and if it shows alimentary residues in the stomach more than four hours after the last meal, the existence of a pyloric stenosis is almost certain. This may be determined by roentgen examination, after ingestion of a bouillon containing a bismuth or barium salt, which clearly reveals impermeability of the pylorus. The diagnosis once established, the operation should be performed as soon as possible. In most cases a longitudinal extramucosal pylorotomy will be the most effective and safest method. However, when this seems insufficient, because of some circumstance such as the extreme hardness of the tumor, a gastro-enterostomy may be used with excellent results.

Presse Médicale, Paris

38: 1361-1376 (Oct. 8) 1930

*Insulin in Treatment of Cardiac Insufficiency. M. Loeper, A. Lemaire and R. Degos.—p. 1361.

*Therapeutic Action of Sugar in Cardiac Insufficiency. N. Kisthinios and D. M. Gomez.—p. 1363.

*Use of Physostigmine Salicylate for Regularization of General Anesthesia. L. Garrelon, G. Pascalis and L. Thuillant.—p. 1365.

Insulin in Treatment of Cardiac Insufficiency.—Loeper et al. advocate the use of insulin combined with dextrose in the treatment of cardiac disturbances. They find that when administered alone it relieves cardiac insufficiency, that it considerably reenforces and prolongs the action of other cardiants, and that it also aids in the specific treatment of syphilis. The action of insulin thus used is twofold: it acts directly on the nutrition of the myocardia and also produces equilibrium of the two functions of glycolysis and glycogenesis. In their experiments the authors used insulin both alone and in connection with other medicaments. Subcutaneous injections of from 5 to 10 units of insulin were given each morning. Fifteen or twenty minutes later the patients were given 100 Gm. of dextrose syrup (about 50 Gm. of dextrose). The immediate results of the injection were a sensation of fatigue, followed shortly by a marked sensation of increased physical resistance. The effects on the arterial tension and cardiac rhythm were noticeable after about the third injection.

Therapeutic Action of Sugar in Cardiac Insufficiency.—Kisthinios and Gomez describe several cases of cardiac insufficiency that had resisted treatment by ouabain and digitalis and in which immediate amelioration was produced and the patients were eventually cured by the administration of dextrose and insulin. Daily doses of 80 Gm. of saturated dextrose syrup were given, and twenty minutes later 4 units of insulin was injected. A lactovegetarian, dechlorinated diet was maintained. Although dextrose, like digitalis, sometimes acts as a diuretic, its pharmacodynamic action is due to its direct effect on the muscles of the heart, since it is efficacious in many cases in which the quantity of urine is already abnormally high. Moreover, the effect of dextrose on the cardiac muscles has long been established through numerous experiments. The authors suggest that a combined treatment with dextrose and ouabain might be valuable, analogous to the combination of ouabain and digitalis that has been used in certain cases in which digitalis alone had been inefficacious.

Physostigmine Salicylate for Regularization of General Anesthesia.—Garrelon et al. have found physostigmine salicylate a valuable aid in the anesthetization of patients who do not yield readily to ordinary anesthetics. Resistance to anesthesia may be predetermined by the fact that in such patients ocular compression either does not influence the pulse rate or causes an acceleration. In anesthetizing one series of patients the authors gave a preliminary subcutaneous injection of pantopium hydrochloricum. Half an hour later they administered ether or chloroform. If the patient did not yield to the anesthetic they then injected 0.5 mg. of physostigmine salicylate. Within one or two minutes the respiration was regularized and agitation ceased, although the patients continued to talk and laugh freely. The abdominal wall was completely relaxed, however, and the surgeon was able to perform any operation with security. As soon as the mask was removed the patients regained consciousness with exceptional rapidity and had no recollection of pain. In a second series of patients a preliminary injection, usually of morphine, was given, together with an injection of physostigmine salicylate. The patients were taken to the operating room in a condition that often permitted immediate intervention, without true psychic sleep. The authors suggest the development of this method for minor operations. The same action is produced by physostigmine salicylate in local anesthesia.

Revue Neurologique, Paris

2: 289-376 (Sept.) 1930

Disturbances in Speech in Course of Pseudobulbar Conditions. G. Lévy. —p. 289.

*Semeiologic Value of Distal Unipolar Electrical Stimulation in Dystonias of Extrapyramidal Origin. V. Néri.—p. 309.

*Primary Juvenile Paralysis Agitans. L. van Bogaert.—p. 315.

Blepharonystagmus. L. Benedek and E. de Thurzo.—p. 327.

Distal Unipolar Electrical Stimulation in Dystonias of Extrapyramidal Origin.—Cathodal stimulation of the lower extremity of the triceps, with the forearm at right angles to the arm, normally provokes extension of the forearm. Néri shows, however, that in dystonias of extrapyramidal origin distal excitation produces no contraction whatever at first; when the intensity of the current is slightly increased, it provokes a slow and progressive flexion of the fingers and hand, and at times a flexion of the forearm toward the arm. A similar reaction may be produced in the muscles of the leg. The diffusion of current thus observed is clearly distinguishable from diffusions due to perturbation of the peripheral motor neuron, because the contraction of the hand is slow and vibrant, whereas in diffusions of peripheral origin the contractions are brusque. It was observed that the application of heat, for instance a cloth dipped in water of from 40 to 50 C., is capable of transforming the flexion into a normal pronation. Cold applications, on the other hand, can cause a normal person to react with flexion of the hand. Since a temperature incapable of modifying the electrical excitability of the nerves or the muscular contractions is able to disturb the direct excitability of the muscles, and since consequently the action of heat and cold is manifest not on the myofibril but on the sarcoplasm, the author suggests that perhaps extrapyramidal dystonias have their origin in perturbations of the sarcoplasm linked with perturbation of the corpus striatum.

Primary Juvenile Paralysis Agitans.—Van Bogaert describes a form of juvenile paralysis agitans that may develop early (in the case reported at the age of 7), and that evolves slowly. There is a marked predominance of phenomena of the various excitomotors, an almost complete absence of hypertonia, and the precocious appearance of definite pseudobulbar symptoms. The tremor, in its graphic and clinical characteristics, is a true parkinsonian tremor. The disease is clinically distinct from Wilson's disease. It is difficult, however, if not impossible, to differentiate it from pseudosclerosis. In spite of clinical indications, the patients do not present hepatic lesions resembling those of hepatolenticular degeneration. From the anatomic standpoint there is a marked lesion of the pallidal system and a lesser lesion of the putaminocaudate system. The locus niger and Luys's body are affected by the degeneration.

The disease behaves as an abiotrophy essentially pallidal but susceptible to diffusion through other systems physiologically associated.

Schweizerische medizinische Wochenschrift, Basel

60: 909-932 (Sept. 27) 1930. Partial Index

*Gonin's Operation for Treatment of Detachment of Retina. P. Knapp. —p. 909.
Criticism of Popular Character Analysis. W. Morgenthaler.—p. 912.
Quantitative Determination of Urea in Blood and in Musculature Under Different Experimental Conditions. A. Rosenblatt.—p. 915.
Cure of Impulsive Idea by Single Physical Action or Cure of Suicide Idea by Reduction of Diastolic Pressure. J. Bonjour.—p. 919.
Conjunctivitis Caused by Ultraviolet Irradiation Cured by Administration of Calcium. R. Bárány.—p. 922.

Gonin's Operation for Treatment of Detachment of Retina.—Knapp points out that in most cases of detachment of the retina there also exists a fissure in the retina. Undoubtedly there is a causal relation between the fissure and the detachment; however, not every tear in the retina necessarily leads to detachment. Gonin was the first to utilize, in therapy, the relation between the fissure and the detachment. He has proved that if the fissure is closed by means of cauterization the detachment of the retina can be cured in many instances. It is essential that the operation be performed as early as possible. Of primary importance and at the same time the most difficult part of the operation is the correct location of the fissure. Advice is given as to how it may be most easily located. The operation itself is comparatively simple and is done following subconjunctival injection of procaine hydrochloride to which epinephrine has been added. A sclerotomy is performed and through the scleral opening cauterization is done. The cauterization into the vitreous body has the object to close the opening in the retina by means of reactive inflammation, and also to fix the retina to the wall of the eyeball. In the second part of the article the author describes three cases in which he employed the treatment successfully.

Annali Italiani di Chirurgia, Naples

9: 833-946 (Sept. 30) 1930

*Two Peculiar Cases of Renal Tuberculosis with Renal Exclusion. R. Pecco.—p. 833.
Variations of Lipemia in Chloroform and in Ether Anesthesia. A. G. Chiariello.—p. 853.
Serous Cysts of Kidney. G. Lino.—p. 865.
Hypochlorinemia and Sodium Chloride Treatment in High (Duodenal) Acute Intestinal Occlusions. G. Figurelli.—p. 878.
Structure and Growth of Movable Bodies in Joints. P. Franceschini and A. Magliulo.—p. 892.
The Testis Transplant. L. Sussi.—p. 921.

Renal Tuberculosis with Renal Exclusion.—Pecco brings out that the cases studied, while they represent two highly favorable courses of renal tuberculosis as a result of exclusion, confirm that so-called autonephrectomy is not synonymous with a clinical recovery, although it may constitute, or at least favor, a local recovery of the tuberculous process.

Archivio Italiano di Chirurgia, Bologna

26: 649-758 (Aug.) 1930

*Recklinghausen's Disease, or Osteitis Fibrosa. V. Ferrero and G. Cucco.—p. 649.
Pseudomyoma of Appendix. F. Zanardi.—p. 691.
*Gastroduodenal Ulcer in the Child. G. de Toni.—p. 703.
Cysts of Vermiform Appendix. T. Biaucheri.—p. 730.
Resection of Lumbar Sympathicus. M. Ronzini.—p. 742.

Recklinghausen's Disease, or Osteitis Fibrosa.—Ferrero and Cucco bring out that osteitis fibrosa may occur in a localized or in a generalized form. To the former belong those cases with solitary bone cysts surrounded by fibrous tissue. The generalized form of osteitis fibrosa involves, however, various segments of the skeleton. The circumscribed form is found usually in young persons, while the generalized form attacks more commonly adults. The long bones are those most frequently attacked by the disease; then, in descending order of frequency, come the vertebrae, the bones of the base of the cranium, the upper and the lower maxillary, and, finally, the flat bones of the thorax and the pelvis; more rarely the metatarsals, the turbinals and the vomer. Of the long bones, the femur is involved in 38 per cent of the cases, the tibia in 22 per cent, and the humerus in 16 per cent. The etiology of Recklinghausen's disease is obscure and various authors advance different opinions. Recklinghausen thought that the disease was of an inflammatory nature, but he did not think that the inflammatory process had its seat in the bone marrow. The fibrosis of the bone marrow, which is the first change that appears, instead of being a process of recovery from the inflammatory disorder, must be regarded as similar in nature to that of malignant tumors, since it attacks and replaces more and more extensive areas of bone. In the localized type, a recovery is often effected after the breakdown of the cystic walls, so that some authors have suggested breaking up the cysts artificially as a mode of treatment. In other cases, puncture is employed or the cyst itself is opened. This treatment will not result favorably if the process of fibrous transformation in the bone marrow is very extensive. In that case, resection of the diseased area is advisable and is followed by the substitution of a piece of bone taken preferably from the patient himself. In the generalized form of the disease, many methods have been tried but without much success. The authors refer to a case of Recklinghausen's disease in a woman, aged 46, which was followed up for several years and carefully studied from the anatomopathologic and the clinical points of view. Various therapeutic measures were tried and a brilliant result was finally obtained by homoplastic transplantation of an ovary. Roentgen examination six months after the foregoing intervention revealed a better calcification, absorption of the cystic cavities, and excellent consolidation of the fractured area.

Gastroduodenal Ulcer in the Child.—De Toni summarizes various types of gastroduodenal ulcers in children and points out the relative frequency of so-called secondary ulcers, whereas primary ulcers are rare—the only ulcers comparable, as a clinical entity, to the round simple ulcer such as occurs in adults. The cases of such disease hitherto described, occurring in children under 12 years of age, are about forty in number. The author adds a personal observation concerning a child, aged 10, in whom, in the absence of all premonitory disturbances of the gastro-enteric apparatus, a syndrome appeared suddenly that, the author felt, justified him in the diagnosis of gastric ulcer. Profuse hemorrhages appeared, recurring several times, which led to the death of the patient, the surgeons having considered operative intervention inopportune. Necropsy confirmed the existence of an ulcer on the posterior wall of the stomach, near the greater curvature. Microscopic examination showed that the ulcer was probably of recent origin. Only two weeks had elapsed from the appearance of the first symptoms involving the gastro-intestinal tract, till death. After discussing the symptoms that justify a diagnosis of gastroduodenal ulcer, the author emphasizes that such ulcers in children tend to have a rapid clinical course. Therefore, when facing a sure, or even probable, diagnosis, it is imprudent to hesitate—surgical intervention should be resorted to without losing further time.

Clinica Pediatrica, Modena

12: 647-738 (Aug.) 1930. Partial Index

*Electrocardiogram in Congenital Heart Diseases in Children. I. Soriani. —p. 647.

Electrocardiogram in Congenital Heart Diseases in Children.—Soriani describes the method and technic used in his electrocardiographic study of nineteen children aged from 4 months to 12 years. In the interpretation of his results, the author excludes two cases (one of primary cardiomegaly in which the electrocardiograms yielded the characteristic so-called looking-glass tracings, and the other of dexiocardia, in which the electrocardiograms showed a preponderant curve of the right ventricular type). Of the remaining seventeen cases in which the existence of congenital heart disease or heart lesion was proved, in ten the electrocardiograms showed right ventricular preponderance, in two a left ventricular preponderance and in five the electrocardiograms were almost normal. The electrocardiographic method has not therefore an absolute value in the diagnosis of congenital heart disease in children. It is, however, a good adjuvant method in association with other modern methods of examination of the heart. The author considers that before the age of 3 months the right ventricular preponderance is normal and should not be taken into consideration in the diagnosis of heart diseases in younger infants.

Policlinico, Rome

37: 1377-1408 (Sept. 22) 1930. Practical Section

Treatment of Psoriasis. M. Monacelli.—p. 1377.
*Structure and Function of Cells of Tuber Cinereum. U. Poppi.—p. 1382.
Peculiar Syndrome Caused by Lymphosarcoma of Jejunum. F. Benedetti-Valentini.—p. 1383.

Structure and Function of Cells of Tuber Cinereum.—Poppi points out that the principal nuclei of the tuber cinereum contain a large amount of fat (consisting, in part, of lipoids), which causes the displacement of the chromatic substance. These cells contain in addition numerous siderophilous granules of a lipoid nature similar to those common to the cells of the hypophysis and the suprarenals. The author recalls the researches of Abel, Collin and Sato, respectively, who found in the tuber cinereum an active principle equal to that of the posterior lobe of the hypophysis, and raises the question whether these cells have a simple reservoir function or whether they have an endocrine function of their own.

37: 417-468 (Sept. 15) 1930. Surgical Section

*Radical Treatment of Cold Abscesses. F. Benedetti-Valentini.—p. 417.
*Congenital Stenosis of Pylorus. G. Guazzieri.—p. 432.
Accessory Pancreas: Two Cases. L. Sussi.—p. 448.
Epithelioma of Uterine Stump After Subtotal Hysterectomy for Fibromyoma. G. Zampa.—p. 457.

Radical Treatment of Cold Abscesses. — Benedetti-Valentini, after describing a case of primary tuberculosis of the costal cartilages, with a large cold abscess of the thoracic wall which he treated radically by subtotal chondrectomy and complete closure of the wound without drainage, expatiates on the pathology and therapy of these disorders.

Congenital Stenosis of Pylorus.—Guazzieri, after discussing congenital hypertrophic stenosis of the pylorus, describes the case of an infant with this disorder, who was operated on at the age of 30 days by means of gastro-enterostomy. He concludes that, while it is true that extramucosal pylorotomy may seem the operation of choice, gastrojejunostomy also will give excellent immediate and remote results in such cases.

Rivista di Clinica Medica, Florence

31: 781-832 (July 31) 1930

*Congenital Malformations of Duodenum and Their Clinical Importance. U. Polerà.—p. 781.
Fibrinous Pneumonia with a Protracted Course and Pulmonary Sclerosis. G. Nizzi-Nuti.—p. 788.

Congenital Malformations of Duodenum.—Polerà points out that it is necessary to keep possible malformations of the duodenum in mind more than is usually done; that in persons with a pain syndrome of the duodenum, when this is of old standing without the general condition of the patient having suffered much, and when it is impossible to invoke a gallbladder or pericholecystic lesion to explain the syndrome in question, it is well to consider the possibility of a malformation of the duodenum; that an inversion of the site of the spontaneous pain and, on palpation, of the picture of a duodenal lesion should awaken suspicion of malformation of the duodenum, and that the roentgen examination has in such a syndrome decisive importance, since it is the only way in which a sure diagnosis can be reached.

Boletín de la Soc. de Obst. y Ginec. de Buenos Aires

9: 245-292 (Sept. 10) 1930

*Intraligamentous Extra-Uterine Pregnancy with Living Fetus Complicating Ovarian Cyst. F. Tallaferro and E. Thwaites Lastra.—p. 245.
*Treatment of Genital Pruritus with Radioactive Mud. J. Iribarne and J. L. Sardi.—p. 259.

Extra-Uterine Pregnancy with Living Fetus Complicating Ovarian Cyst.—Tallaferro and Thwaites Lastra say that, in cases of extra-uterine pregnancy complicating an ovarian cyst, the factor which offers more difficulties for the surgeon and which endangers the patient's life is that related with the treatment of the placenta, especially when the pregnancy has advanced to near term. Removal of the placenta should be the treatment of choice. A good hemostasis should be secured before it is removed. In cases in which a satisfactory hemostasis cannot be obtained, a Mikulicz drain should be inserted. It has the double advantage of controlling hemorrhage and favoring the expulsion of retained placental fragments. If removal of the placenta may endanger the patient's life, the treatment used by American authors (in which the placenta is left, enclosed in the fetal cyst, the latter being closed and marsupialized) seems preferable. The results of this method, however, are not as yet well known. The publication of statistics, containing a larger number of cases than those which have been reported hitherto with this method, is advisable in order that its utility and importance can be evaluated. In the authors' case, the patient, aged 34, had had only one child, one year after her marriage. Since then she had acquired gonorrhea and had been sterile for fifteen years. During the previous seven months the patient had amenorrhea, interrupted at the second, third and fourth months by attacks of lypothymia, slight loss of blood through the genitalia, and pains (similar to those of labor). The severe attack which the patient presented on admission to the hospital was similar to the previous attack, though more intense. When a laparotomy was performed an intraligamentous extra-uterine pregnancy, complicating an intraligamentous ovarian cyst, was found. On the opening of the fetal cyst, a living fetus of normal weight, which lived for some hours, was delivered. It had a cranial deformity, polydactylism and ankylosis of the joints of the legs. The cyst and placenta were removed and a hysterectomy was performed. The patient recovered.

Treatment of Genital Pruritus with Radioactive Mud.—Iribarne and Sardi praise the therapeutic value of radioactive mud in the treatment of pruritus vulvae. It has a weak but constant analgesic action on chronic inflammatory processes and a stimulating action on the local vitality of the tissues. The radioactive substance is used in the form of a poultice in direct contact, through gauze, with the vulva. The poultice is applied when the patient retires and is held in place by means of a T bandage. The next morning the poultice is removed. The treatment is repeated for five consecutive nights. In cases observed by the authors (twelve patients, ages ranging from 28 to 51 years) the pruritus had lasted for from one year to ten years. Ten patients obtained a complete recovery from the treatment (one of this group was a diabetic patient). One of the patients improved and in one of them the treatment failed.

Archiv für Hygiene, Munich

104: 99-387 (Sept.) 1930. Partial Index

*Identification of Colorless Prodigiosus Bacilli. G. Schad.—p. 99.
*Tarred Streets as Cause of Cancer. K. B. Lehmann.—p. 105.
*Anthrax of Intestine in Man. N. Solowieff.—p. 132.
*Test for Respiratory Capacity. F. H. Lorentz.—p. 378.
*Mortar with Cellophane Guard. H. Dold.—p. 386.

Identification of Colorless Prodigiosus Bacilli.—Schad describes experiments in which he demonstrated that when prodigiosus bacilli lose their power to form pigments they do not lose their agglutination properties. Therefore agglutination tests may be used for the identification of colorless prodigiosus bacilli.

Tarred Streets as Cause of Cancer.—In determinations of the tar content of the air raised from tarred streets by the passage of automobiles over them, Lehmann found that during an eight hour ride approximately 10 meters behind an automobile on a tarred street only 1.5 mg. of tar passed off into the air. He believes that this amount is too small to make tarred streets a factor of any importance in the etiology of cancer either of the skin or of the lungs.

Anthrax of Intestine in Man: Pathologic Changes.—Solowieff reports the observations he made at the postmortem examination of twenty-two persons who had died from intestinal anthrax. It was noted that in cases in which malignant pustules of the skin had appeared first and had persisted for more than four days, lesions resembling carbuncles of the skin were found in the intestine. In seven of the twenty-two cases, lesions of this type were found in the mesentery of the small intestine and of the large intestine. Most of the lesions resembled a cherry in size and color and microscopically they were found to consist of a collection of leukocytes and erythrocytes (most of which showed degenerative changes) and large numbers of anthrax bacilli. In all the cases a condition resembling malignant edema of the skin was found in the intestine. The inflammation was usually of a phlegmonous nature and was always limited to a segment of the intestine from 10 to 12 cm.

long. This part of the intestine was always greatly thickened as a result of edema and a cellular infiltration; the edematous intestine and the peritoneum in its vicinity were dark red from a diffuse infiltration of blood. The cecum and the portion of the small intestine immediately adjacent to it were involved most frequently (twelve cases) and then followed the transverse colon (six cases), the ascending colon (two cases), the descending colon (one case), and the rectum (one case). In three of the cases there were also thickenings in the wall of the small intestine. In the cases of anthrax typhlitis the cecum was thickened and into its lumen projected a tumor resembling the cervix of the uterus. The cecal valve had disappeared in the enlargement and on the mucosa there were superficial ulcers the size of a pea. Some of the follicles were distinctly visible because of a moderate hyperplasia. The lymph nodes of the mesentery were usually enlarged in the region of the inflammation but not elswhere.

Test for Respiratory Capacity.—Lorentz states that from the practical standpoint enough information can be obtained concerning the respiratory capacity from the spirometric index. The size and expansion capacity of the thorax are not reliable as indicators of the respiratory capacity.

Mortar with Cellophane Guard.—For the safe pulverization of bacteria and irritant and poisonous substances, Dold recommends that a cellophane guard be placed over the mortar.

Deutsche medizinische Wochenschrift, Berlin

56: 1683-1724 (Oct. 3) 1930. Partial Index

Initial Insulin Hyperglycemia. A. von Korányi.—p. 1683.
Psychophysical Interrelation in Clinical Conditions. G. von Bergmann.—p. 1684.
Vitamin Reserve in Male and in Female Organism. E. Poulsson.—p. 1688.
Dynamics of Stomach. P. Klee.—p. 1689.
Modern Investigations on Small Intestine and Their Significance. Van der Reis.—p. 1691.
*So-Called Blue Reaction in Icterus. A. A. Hijmans van den Bergh, P. Muller and A. G. M. Verbeek.—p. 1693.
Pathogenesis of Cholangeitis. H. Jacoby.—p. 1695.
*Clinical Aspects of Duodenal Diverticulitis. H. U. Albrecht.—p. 1697.
Transition of Myxedema into Exophthalmic Goiter. E. Möller.—p. 1699.
*Electrolyte Composition of Blood in Case of Diabetes Insipidus. M. Gradwohl.—p. 1700.

So-Called Blue Reaction in Icterus.—Van den Bergh et al. direct attention to Brugsch's "blue reaction." Brugsch claims that the blue discoloration of the skin, noted in certain forms of icterus, following the intradermal injection of a small amount of a 1 per cent solution of potassium ferricyanide, is due to the presence in the skin of bivalent iron. Dietrich investigated Brugsch's theory and comes to the conclusion that the blue reaction is not due to the presence of bivalent iron but rather to the oxidation of bilirubin. The authors likewise investigated this problem and their observations corroborate Dietrich's claims rather than Brugsch's. Examination by an experienced microchemist, of a bluish discolored portion of the skin of a patient with icterus, did not reveal the presence of iron.

Clinical Aspects of Duodenal Diverticulitis.—Albrecht reports his observations on fifty patients with duodenal diverticula. The diverticula may be found on all parts of the duodenum; however, they are most frequent on the pars descendens and in the region of the papilla but are rarely found on the pars superior. While in congenital diverticula of the digestive tube usually all parts of the intestinal wall are involved, in acquired pulsion diverticula only the mucosa, submucosa and serosa are generally involved. Duodenal diverticula may be considered as acquired pulsion diverticula due to congenital predisposition. The author also discusses the roentgen diagnosis of duodenal diverticula. It is further pointed out that in many instances diverticula are entirely harmless, but, whenever the diverticulum shows a tendency for retention of foods, bacterial disintegration sets in and inflammations develop. The latter are often followed by hemorrhage, abscess, gangrene and perforation. Perforation in the neighboring tissues involves most frequently the pancreas. In many instances, pancreatitis is noted. The symptoms of the secondary diseases that develop from duodenal diverticulitis frequently predominate to such an extent that the causal diverticulum is overlooked. Disorders that may result from duodenal diverticulitis are duodenitis, gastritis, and, if the diverticulum is in the region of the papilla, frequently infections of the bile and pancreatic ducts. Regarding the therapy of duodenal diverticula, it is stated that those which have no disturbing effects do not require treatment. However, those which have a tendency to retention of foods require treatment. In the beginning internal therapy is usually attempted, but if the disorders recur frequently surgical treatment is advisable.

Electrolyte Composition of Blood in Case of Diabetes Insipidus.—In a case of this disease, a considerable increase in the potassium content of the blood and especially of the serum was noted by Gradwohl. The calcium content, however, showed a relative decrease and the sodium content a marked increase. The water resorption capacity of the normal erythrocytes was considerably increased. Under the influence of a preparation of the posterior lobe of the hypophysis, the potassium values returned to normal. On the other hand, the sodium content was somewhat increased. The normal erythrocytes in the serum of the patient with diabetes insipidus did not show an increased swelling. Tests on the electrolyte composition of the blood of patients without metabolic disturbances proved that the potassium and calcium values were not noticeably influenced by the injection of hormonal substances of the posterior lobe of the hypophysis.

Deutsche Zeitschrift für Chirurgie, Leipzig

227: 1-567 (Sept.) 1930. Partial Index

*Primary Treatment of Wounds. J. Hansen.—p. 17.
*Possibility of Exerting an Effect on Occurrence of Metastases in Cases of Intravenous Infections: Experimental Study. A. Läwen and W. Muller.—p. 27.
*Tumors: Spontaneous Healing: Cancer Cells in Circulating Blood: Metastasis of Benign Tumors: Biopsy. R. Hanser.—p. 59.
*Traumatic Arterial Aneurysm of Palmar (Volar) Arch. J. Volkmann.—p. 151.
*Local Recurrences of Breast Cancer: Analysis of Statistics. H. Schloffer.—p. 170.
*Surgical Treatment of Echinococcus Disease. M. Gerulanos.—p. 198.
*Results of Treatment of Gastric and Duodenal Ulcers by Means of Gastro-Enterostomy with Large Stoma. Reichel.—p. 223.
*Spontaneous Obliteration of Distal Portion of Intestine After Colostomy. A. Lewin.—p. 272.
*Roentgen Therapy of Hypertrophied Prostate. K. Braeunig and E. Gruhn.—p. 313.
*Implantation of Bone into Lower Jaw. G. Axhausen.—p. 368.
*Blood Transfusion: Safeguarding the Donor. G. Schöne.—p. 448.
*Local Amyloidosis of Brain a Late Result of Roentgen Irradiation of Temporal Region for Cancroid. A. W. Fischer and Holfelder.—p. 475.
*Anatomy of Gasserian Ganglion with Reference to Surgical Treatment of Trifacial Neuralgia. F. van Nouhuys.—p. 483.
*Surgical Treatment of Dupuytren's Contracture of Fingers. C. Ritter.—p. 544.

Primary Treatment of Wounds.—More than ten years of experience with the treatment of accidental wounds in a mining section, seeing from ten to fifteen new cases every day, Hansen says, has convinced Magnus's associates of the great value of excision and suture of every type of wound. Drainage is never employed. No especial effort is made to cleanse the area surrounding the wound; a local disinfectant is used; the edges of the wound are trimmed carefully and then sutured with thread, silk or catgut. A dry sterile dressing is applied and completes the operation. Of course, antitetanic serum is used freely.

Experimental Production of Metastases.—Läwen and Müller report on experiments made to produce metastases into joints by various mechanical measures, such as bandaging, the use of tourniquets, the intravenous injection of pathogenic bacteria and their toxins, and deprivation of vitamins in the food. All attempts to achieve the result aimed at were futile.

Effect of Biopsy on Malignant Tumors.—Hanser asserts that in cases of tumors a biopsy is often essential to making a diagnosis of malignancy. He denies that a malignant growth is ever induced by such a procedure. Often it is possible to remove a malignant tumor completely, without later recurrence, by such early diagnosis. Two instances are referred to in which a biopsy was done twice on a carcinoma and the tumor disappeared completely. The incidence of metastases is not increased.

Traumatic Arterial Aneurysm of Palmar Arch.—Volkmann relates two cases in order to call attention to the fact that heretofore such cases have probably escaped being detected. They comprise about 1 per cent of all aneurysms. The symptoms may not be helpful in arriving at a diagnosis. Sixty-seven *cases already recorded in the literature are summarized.*

Local Metastases in Breast Cancer.—Schloffer has been able to trace definitely 149 cases of breast cancer in which he operated at least five years ago. Of this number, 49.5 per cent of the patients succumbed to distant metastases. During the first five years, 2.6 per cent had local metastases; the same percentage had lenticular metastases; 6.1 per cent had axillary metastases and 7 per cent had metastases in the supraclavicular lymph nodes. He feels that some of these metastases could have been prevented by more extensive dissection of local tissues than was done. In several of the supraclavicular lymph node cases, internal metastases were also present. The only modification in the technic of operation, in his opinion, should consist in wider excision of the skin. No fear need be had that too much skin will be excised.

Surgical Treatment of Echinococcus Disease.—Gerulanos has observed 564 cases of echinococcus disease involving all the thoracic and abdominal organs (liver, 386 cases), the breast, thyroid, orbit, muscles, bones and spinal column. He describes the technic employed in various types of echinococcus cyst, stressing the importance of so-called primary suture, and that it is not necessary to drain. The essential point to bear in mind is early operation, as delay from day to day will increase the dangers of this infestation and militate against a favorable outcome.

Treatment of Gastric and Duodenal Ulcers.—Resection, in Reichel's opinion, should be the operation of choice. Gastro-enterostomy, with a large opening on the posterior wall of the stomach, should be reserved for those in whom resection is contraindicated because of the existence of conditions in an individual which point to the exercise of caution in performing any surgical procedure.

Obliteration of Distal Portion of Bowel After Colostomy.—Lewin calls attention to the fact that after a colostomy has been done for a chronic ulcerous stenosing process of the rectum it is never necessary to resect the distal portion of the bowel because it will eventually obliterate itself completely by shrinkage. Equally important, therefore, is it never to close the colostomy opening. He cites in detail, including microscopic examination, the case of a woman who died twenty-four years after the colostomy operation and also cites briefly several similar cases recorded in the literature.

Roentgen Therapy of Prostatic Hypertrophy.—Braeunig and Gruhn advocate this treatment, with vasectomy, in these cases. They describe their technic. Even in cases with complete retention of urine and considerable damage of the kidney and severe degrees of infection of the urinary passages, a cure has been effected. Carcinoma of the prostate and adenoma of the isthmus which causes complete retention of urine are not cases suitable for this treatment. The authors have treated thirty-eight cases and present a brief summary of each.

Preliminary Transplantation of Bone.—Axhausen describes his experiences with the preliminary transplantation of bone into the lower jaw in cases demanding later resection of part of the jawbone. The transplant is buried in the soft parts of the jaw and sometime later—a month or more—the operation is performed on the jaw. At that time it is found that the transplant has become an integral part of the locale; it effectually resists infections and insures a satisfactory result. The method was described by the author in 1928. Now he reports a series of cases in which it was used in lower jaw cases; bone defects, osteomyelitis, lengthening of the lower jaw, tabetic defects with much scar tissue, and even fistulas.

Making Blood Transfusion Safe.—Schöne feels that failure to safeguard the donor has led to disastrous consequences. The position of donor and donee makes it possible for blood to spurt from the donee to the donor, leading to infection with syphilis or with bacteria or toxins contained in the blood of the former. He urges that they should not be permitted to lie in contact or even close to each other. Oehlecker's method is preferred over others.

Amyloidosis of Brain Caused by Roentgen Ray.—Fischer and Holfelder report the case of a man who had received many treatments with the roentgen ray in the course of two years for a cancroid on the temple without effecting a cure. After three years the ulcer was excised and the defect covered with a skin flap. Except for this, he had always been a strong, healthy man. About five years after he had been subjected to the roentgen treatment he had thermic sensory disturbances, became restless, perspired a great deal, had a numb feeling in the left hand and sometimes cramps, also in the left leg. Eventually he had attacks of aphasia lasting five or ten minutes, recurring two or four times a week. A brain metastasis from the original cancroid was suspected. Finally, the brain was exposed in the temporal zone. A piece of it was excised and on examination proved to contain areas of amyloid degeneration. In view of the absence of any recurrence of the cancroid in the skin, the underlying bone, the meninges or the brain, the authors believe that they are justified in concluding that the roentgen ray was responsible for the development of amyloid disease.

Anatomy of Gasserian Ganglion.—On the basis of his anatomic study of this ganglion, van Nouhuys asserts that Frazier's method of subtotal resection of the sensory root is not a reliable radical operation because, if one third of this root is conserved, assurance is not had that it does not contain fibers going to the maxillary or the mandibular roots, which would make a recurrence possible.

Surgical Treatment of Dupuytren's Contracture of the Fingers.—Ritter describes his technic, which consists of making a number of small transverse incisions by means of which tendons are lengthened without being first completely divided and reunited. It is a conservative rather than a radical operation; it is not mutilating and is very effective.

Strahlentherapie, Berlin

38: 1-198 (Sept. 27) 1930

Effect of Roentgen Rays on Nuclear Division in Roots of Beans. O. Jüngling and H. Langendorff.—p. 1.
Comparison of Biologic Action of Roentgen Rays and Gamma Rays. R. Braun.—p. 11.
Changes Produced in Skin by Different Amounts of Rays from Various Kinds of Radium Containers. A. Reisner.—p. 19.
*Action of Roentgen Irradiation on Regulation of Blood Sugar. A. Held.—p. 27.
*Blood Pressure Variations Following Roentgen Irradiations, and Their Clinical Significance. H. Pausdorf and W. Nell.—p. 40.
Influence of Air Pressure on Development of Erythema and Pigmentation in Skin. F. Schmidt-Labaume and E. Uhlmann.—p. 54.
Intensification of Action of Roentgen Rays by Secondary Radiation. P. Ellinger and E. Gruhn.—p. 58.
Sensitizing Action of Hematoporphyrin with Regard to Roentgen Rays. N. A. Podkaminsky.—p. 98.
*Sarcoma of Uterus: Roentgen Treatment. A. Béclère.—p. 113.
Combined Treatment of Malignant Tumors with Naphthylpararosaniline and Roentgen Irradiation. H. Cramer.—p. 123.
*Lymphogranulomatosis: Roentgen Treatment. H. U. Billich.—p. 141.
*Idem. M. ten Doornkaat-Koolman.—p. 147.
*Agranulocytic Angina: Roentgen Treatment. F. Burgheim.—p. 152.
Roentgen Tubes with Complete High Tension Protection up to Two Hundred Kilovolts. A. Bouwers.—p. 157.
Superficial Treatment Apparatus with Constant Radiation. W. H. Boldingh.—p. 165.
Sabouraud-Noiré Dosimeter. K. Hoede.—p. 173.
Standardization of Roentgen Dose Unit. T. C. Neeff.—p. 177.
Necessity for Statement of Exact Dosage in Articles on Treatment with Infraroentgen Rays. O. Gfrörer and H. Berger.—p. 184.
Sources of Danger in Roentgen Treatment of Skin Diseases. D. von Kémeri.—p. 187.
File for Storage of Roentgen Films. A. Giebmanns.—p. 196.

Action of Roentgen Irradiation on Regulation of Blood Sugar.—According to Held, a differentiation must be made between the general action of roentgen irradiation on the regulation of blood sugar and the direct action on the transformation of sugar in the irradiated area itself. In experiments on rabbits and dogs he found that the general action of roentgen rays on the blood sugar regulation, which is manifested by hyperglycemia, is caused by the products of the roentgen reaction. This was demonstrated by the appearance of hyperglycemia in animals following the reinjection of irradiated blood. The causal factors are to be sought in the increased hydrogen ion concentration, the transmineralization and the denaturation products of protein. The direct action of the rays was studied by a comparison of the capillary and venous blood sugar in an irradiated and in a nonirradiated posterior extremity. It was shown that muscle cells also may participate actively in the blood sugar regulation. In the absorption area of the rays there occurred a relative hypoglycemia caused by a direct reaction to the rays.

Blood Pressure Variations Following Roentgen Irradiations, and Their Clinical Significance.—Pausdorf and Nell state that the blood pressure variations that occur immediately after a roentgen irradiation are to be separated etiologically from the variations that occur from twenty-four to forty-eight hours later. Although the former are irregular and variable, the latter follow a definite wave-shaped course that is repeated after from twenty-five to thirty-five days and after from fifty to seventy days. The decrease in the blood pressure is not caused by the action of the roentgen rays on the suprarenals but is the expression of a general reaction caused by marked cellular degeneration and by the hyperirritability of the vasodilator apparatus.

Sarcoma of Uterus: Indications for Roentgen Treatment.—In sarcoma of the uterus, Béclère recommends postoperative roentgen irradiations as a prophylactic measure to prevent recurrences. As a palliative measure roentgen irradiations are indicated in all inoperable cases, in all cases in which operation is contraindicated or is refused by the patient, in all cases of recurrence and in all cases of metastases, regardless of their location.

Lymphogranulomatosis: Roentgen Treatment.—Billich thinks that in the past the doses of roentgen rays used in the treatment of lymphogranulomatosis have been too large. In the treatment of thirty-one persons with this condition he obtained good results with minimal doses of roentgen rays. In cases in which the lymph nodes are soft, only from 20 to 30 per cent of a unit skin dose is used. By the use of such small doses both intense decomposition of protein with its accompanying disturbances and injuries of the skin are avoided. As routine treatment a radiation of medium hardness of from 170 to 180 kv. and 5 milliamperes through a zinc filter 0.5 mm. thick and an aluminum filter 1 mm. thick at a focal distance of 30 cm. is used. As adjuvant treatment, intravenous injections of thoron may be given.

Lymphogranulomatosis: Roentgen Treatment.—Doornkaat-Koolman reports a case of lymphogranulomatosis in a boy, aged 11, who came under observation in 1924 with enlarged lymph nodes in the occipital region, neck, inguinal region and in the region of the hilus of the lung. The treatment consisted of four series of high voltage roentgen irradiations that were given from June, 1924, to May, 1925, and of repeated sojourns in high mountains. Since the beginning of 1926 the patient has been completely cured clinically; his physical development has been excellent and he has been able to lead an active life.

Agranulocytic Angina: Roentgen Treatment.—For the treatment of agranulocytic angina, Burgheim recommends irradiation of the bone marrow in a large number of the long bones with small doses of hard, filtered roentgen rays.

Wiener klinische Wochenschrift, Vienna

43: 1217-1244 (Oct. 2) 1930. Partial Index

Duration of Pregnancy in Forensic Medicine. K. Meixner.—p. 1217.
Significance of Movement for Mental Hygiene in the United States of North America. O. Kauders.—p. 1223.
*Embolism of Renal Vessels Caused by Cancer Tissue. E. Froewis.—p. 1227.
Situs Viscerum Inversus Totalis. W. W. Weinberg.—p. 1230.
Congenital Tuberculosis. M. Zarfl.—p. 1231.
*Eye Diseases During Childhood. K. Safar.—p. 1232.

Embolism of Renal Vessels Caused by Cancer Tissue.—Froewis describes the case of a woman, aged 58, who had cancer of the rectum. Because the growth was inoperable, the surgical treatment was limited to the formation of an artificial anus. The cancer perforated into the vagina and the patient died sixteen days after the operation. The necropsy revealed, besides the squamous cell epithelioma in the rectum, metastases in the lungs, liver, spleen and suprarenals. The kidneys were of normal size but section revealed that the lumen of numerous vessels and of the glomeruli were thrombosed by cancer tissue. Otherwise the kidneys were free from metastases. This case proves that cancer cells may be carried into the glomeruli, and it is probable that these cells lead to the development of renal metastases.

Eye Diseases During Childhood.—Safar discusses the causes and treatment of eye diseases that occur during childhood He mentions suppurative conjunctivitis of the new-born and dacryocystitis. Malformations such as anophthalmos, microphthalmos, colobomas of the iris and of the choroid, and ectopia lentis with tremulous iris, the physician should recognize, although treatment is not possible. However, the recognition of a cataract is significant because an operation should be performed as soon as the general condition of the child permits it. Glaucoma may also occur during childhood, and it is usually accompanied by enlargement of the eyeball. In such cases, early operation can check the further enlargement of the eye and the impairment of the vision. The author further discusses glioma of the retina, acute conjunctivitis, membranous conjunctivitis, paralysis of accommodation, blepharitis in scrofulous children, suppuration of the lacrimal sac, eczematous inflammation of the eye and interstitial keratitis. Of the diseases of the fundus oculi he mentions retinitis pigmentosa, and the ocular disorders in children with amaurotic family idiocy. In children with oxycephaly or with other cranial deformities there sometimes exists choked disk or atrophy of the optic nerve. In cases of rickets, tetany and diabetes, cataract formation is frequent. The author discusses also strabismus and refraction anomalies.

Zeitschrift für Tuberkulose, Leipzig

58: 1-128 (Sept.) 1930

*Differential Diagnosis and Treatment of Early Tuberculous Infiltrates. Dorendorf.—p. 1.
Duration of Early Infiltrate and Its Disintegration. K. Siegfried.—p. 12.
Calcification of Pleura. F. Oldenburg.—p. 18.
Bilateral Filling of Pulmonary Cavities. G. Frischbier.—p. 29.
*Particular Reaction in Cases of Tuberculous Reinfection. E. A. Schnieder.—p. 33.
Needle for Intrathoracic Injections. A. Milko.—p. 35.

Differential Diagnosis and Treatment of Early Tuberculous Infiltrates.—Roentgenograms of an acute or chronic, indurated pneumonia, bronchopneumonia, postpneumonic sequelae and atelectatic pulmonary areas with peribronchial or endobronchial foci may appear identical with those of a perifocal inflammation. Roentgenograms of circumscribed early tuberculous foci may resemble those of tumors or their metastases. The differential diagnosis is based on the outline of the tumor and on the age of the patient. Tuberculous infiltrates located in a pulmonary lobe must be differentiated from lobar carcinoma. A pulmonary abscess or a circumscribed gangrenous focus of the lung may occasionally be mistaken for a nontuberculous perifocal inflammation. Examination of the sputum and the course of the disease are important in the differential diagnosis. The prognosis of an early infiltrate is favorable when the treatment starts in the beginning of the disease. In most of the cases observed, the diagnosis was not made before a pulmonary cavity developed. Rest treatment, continued for weeks, may suffice in the beginning when there is a tendency to resorption and cicatrization. Any irritative therapy is contraindicated. Artificial pneumothorax is the method of choice in cases in which disintegration of the infiltrate occurs. The treatment was followed by a rapid improvement of the pulse and by a decrease in the fever. Expectoration was frequently reduced one or two months after the beginning of the treatment. Gradual slowing of the accelerated sedimentation of the blood, favorable changes in the leukocyte picture and gain in body weight were recorded in all patients treated with pneumothorax. The latter was usually continued for from one to one and one-half years; in only a few cases was the duration of the treatment considerably reduced. The treatment was continued for at least six months after the general condition became good and the blood reaction and roentgenograms became normal. The treatment proved effective in patients with an advanced pulmonary cavity. Serous exudate was found in 30 per cent of advanced cases in which extensive metastases were present; purulent exudate was not observed. In three instances there was distortion of the mediastinal organs; in one, it was associated with slight circulatory disturbances. An active process developing on the other side could in the beginning be arrested by absolute rest in bed. If not, pneumothorax was induced and that on the other side was discontinued when fever and bacilli had disappeared for months. Otherwise there was a pneumothorax on each side. An easy occupation could often be resumed a few months after the beginning of the pneumothorax. Observation was continued for years after the pneumothorax had been discontinued. Dorendorf induced pneumothorax in ninety-four patients with an early tuberculous infiltrate. Forty-four were reexamined. Twenty-four apparently recovered; they were able to resume their occupation; in the remainder, the improvement was notable.

Study of Experimental Tuberculous Reinfection.—Schnieder's experiments were conducted on rabbits. The reinfection as well as the infection was practiced in the animal's cornea. About 0.002 mg. of B C G vaccine was used for the infection and 0.0000017 mg. (about 800 bacilli) for the reinfection. The interval between the complete healing of the corneal tissue after the first infection and the reinfection was from 280 to 290 days. In three instances, the tissue reactions were similar to those observed on transformation of an early infiltrate in a cavity. In others the reactions resembled those observed on formation of an early infiltrate. In most of the animals, the infection remained latent for seventeen days. Then the infectious process developed gradually. In the first three animals, infiltration of the reinjected tissue appeared the first day; the necrotic infiltrate was eliminated on the sixth day. A holelike defect of the cornea resulted; it was followed by protrusion of the contents of the eye. In two instances there was a secondary infection and destruction of the eye. In the third instance, the corneal defect soon became filled with a new tissue; the form of the cornea was restored within thirty days. At the same time, the controls developed a progressive tuberculosis of the eye. The results tend to explain why tissue reactions sometimes result in an infiltration alone, while sometimes the latter develops into a cavity. Allergy and immunity do not appear simultaneously in the infected area and in the whole organism; namely, first local allergy and then local immunity develop; general allergy and general immunity appear later. Moreover, the local allergy and the local immunity persist longer than the general allergy and the general immunity. At the end of an infection, allergy persists after immunity has disappeared; it persists longer in the local focus than in the whole organism. The allergy may sometimes prove to be sufficient in the defense against tubercle bacilli as it is against other bacilli. Otherwise, there is formation of a sequestrum and an early cavity develops.

Acta Medica Scandinavica, Stockholm

73: 399-510 (Sept. 27) 1930

Bigeminal Rhythm of Entire Heart: Case. K. Weber.—p. 399.
*Effect of Intravenous Injection of Insulin on Blood Sugar Curve. T. E. Hess Thaysen.—p. 408.
Coronary Circulation and Thrombosis of a Coronary Artery. E. J. Warburg.—p. 425.
Cerebral Syndrome of Abdominal Muscles. E. Wallgren.—p. 460.
Elephantiasis of Leg: Case. E. Wallgren.—p. 466.
*Effect of Intravenous Injection of Insulin on Gastric Secretion. K. Roholm.—p. 472.
Pneumothorax: Pathology and Physiology of Lung. A. F. Lindblom. —p. 493.

Effect of Intravenous Injection of Insulin on Blood Sugar Curve.—Hess Thaysen studied the blood sugar curve of twenty-one persons with diabetes mellitus following the intravenous injection of 12 units of insulin. He noted that in the mildest cases the assimilation line showed the normal steep, almost straight fall, most often from a hyperglycemic value to the lowest blood sugar value, and this was followed (usually at an acute angle) by the ascending or restoration line. In the more severe cases the assimilation line began as a steep fall, sometimes from a high hyperglycemic value, and continued then as a less rapid fall to the lowest point in the blood sugar curve. When the fasting blood sugar was brought down toward the normal limit in such cases, the first fall in the assimilation line was less pronounced and the difference between the assimilation lines of diabetic persons and of normal persons became more pronounced because of the less abrupt fall in the assimilation line of the former. In the most severe cases the first, rapid fall from a hyperglycemic value was replaced by a more slowly falling, slanting line that was followed by a gently sloping arched line that continued to the lowest point of the assimilation line. Frequently in the severe cases and less frequently in the moderately severe and mild cases there were irregularities in the course of the assimilation line in the form of a sudden, steep but brief rise followed by a sudden fall. In mild cases the restoration line did not differ essentially from the one seen in normal persons. It had a distinct primary and secondary rise but it never reached the original blood sugar value within the examination period. In the moderately severe cases, as a rule, the rise in the restoration line was less pronounced and a distinction between the primary and secondary rises was occasionally absent. This was true particularly in the severe cases. The restoration line sometimes showed irregularities in its course, as a sudden rise followed by a sudden fall.

Effect of Intravenous Injection of Insulin on Gastric Secretion.—Roholm studied the gastric secretion of nine normal persons as controls and of sixteen normal persons following the intravenous injection of 12 international units of insulin. It was noted that insulin stimulated the gastric secretion quantitatively and qualitatively. The amount of gastric juice was increased every ten minutes from 10 or 12 cc. to 16 or 18 cc. A smaller increase during the first twenty minutes of the experiment was replaced by a brief fall; this was followed by a greater increase that began about thirty minutes after the injection and reached its maximum from fifty to sixty minutes after the injection. From then on there was a gradual fall until the end of the experiment. Examination of the gastric juice with regard to its acidity revealed that during the first twenty-five minutes following the intravenous administration of insulin there was a slight primary rise that was followed by a fall. After about thirty minutes there was a marked and rapid rise in the acid production until the maximum was reached (about sixty minutes after the injection), corresponding with phenolphthalein values of from 100 to 140. Then the acidity fell slowly and two hours and ten minutes after the injection it had returned to normal. The pepsin content of the gastric juice following the intravenous injection of insulin showed an increase that was concurrent with the increase in its amount and acidity. Individual variations in the pepsin content, however, were far greater than the variations in the acidity, which is consistent with the well known fact that there is not a constant parallelism between the acid and the pepsin secretion of the stomach.

Hospitalstidende, Copenhagen

73: 825-836 (Aug. 14) 1930

*Treatment of Pernicious Anemia with Dried Stomach. S. A. Holbøll. —p. 825.
*Treatment of Ileus with Hypertonic Solution of Sodium Chloride. E. Schnohr.—p. 831.

Treatment of Pernicious Anemia with Dried Stomach.—Holbøll finds that the results of this treatment correspond to those obtained by treatment with liver. The rise in the hemoglobin percentage and erythrocyte count in two cases described was rapid and marked, while the increase in the number of reticulocytes was not on the same scale as in liver treatment. On termination of the reticulocyte reaction due to the stomach preparation, treatment with liver extract did not cause a new reticulocyte reaction, showing that the active principle in the stomach is identical with the active principle in the liver.

Treatment of Ileus with Hypertonic Solution of Sodium Chloride.—Schnohr says that in high ileus a syndrome consisting of hypochloremia, azotemia and alkalosis has been established experimentally and often clinically. He reports four cases with symptoms of ileus in which the abundant administration of sodium chloride in the form of injections of a hypertonic solution resulted in the restoration of peristalsis in all the patients, two of whom recovered.

73: 849-876 (Aug. 28) 1930

*Results of Suture Method in Treatment of Perforated Gastric Ulcer. P. Kühnel.—p. 849.
Reaction to Cold in Surgical Tuberculosis of Extremities. J. Foged.—p. 862.

Results of Suture Treatment in Perforated Gastric Ulcer.—Kühnel reports that, of twenty-eight patients operated on by this method and examined after from two to sixteen years, 68 per cent are able to work and 32 per cent are but slightly improved or unimproved. He emphasizes the importance of long-continued medical after-treatment.

73: 877-904 (Sept. 4) 1930

*Pulmonary Tuberculosis in Perihilus Region in Adults. K. Faber.—p. 879.

Pulmonary Tuberculosis in Perihilus Region in Adults.—Faber reports eight cases to illustrate the manner in which infiltrations in this region most often appear and develop, and discusses the diagnosis, prognosis and treatment.

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THE INDUSTRIAL PHYSICIAN AND THE GENERAL PRACTITIONER [*]

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CHICAGO

The scientific origin of industrial hygiene is usually dated from the publication of a treatise on diseases of occupation entitled "De Morbis Artificium Diatriba" in the year 1700 by Prof. Bernardo Ramazzini of the University of Padua. Since that time great strides have been made in the study of diseases of occupation and the many ramifications of industrial health work. Mention might well be made of some of the outstanding events showing the importance of the development of industrial medicine.

According to Dr. Harry Mock, the first physical examinations of which there is any record were done by Dr. Frank Fulton of Providence, R. I., in 1906. These examinations were made free of charge for the purpose of discovering tuberculous workmen. In 1909, Dr. Mock began examining employees of Sears, Roebuck & Company, in Chicago, and this practice was speedily followed by other pioneers in the field of industrial medicine. The first official section on industrial hygiene was inaugurated in 1914 by the American Public Health Association.

The year 1915 was particularly significant in the history of industrial medicine. Three events of outstanding importance took place:

1. The organization of a division of industrial hygiene and sanitation by the United States Public Health Service at Washington, D. C., under the direction of Surg. J. W. Schereschewsky.
2. The creation of a section on health service in the National Safety Council, which section held its first session in conjunction with the Fourth Annual Congress at Philadelphia in October.
3. The inauguration of the Section on Hygiene and Preventive Medicine by the American Medical Association, under the chairmanship of Dr. Otto P. Geier.

Many educational institutions readily saw their opportunity and their responsibility in this developing field. Harvard University, however, was the first institution in the world to establish a course of instruction and research leading to degrees in industrial hygiene, in the year 1918. These studies led to the Certificate of Public Health in Industrial Hygiene and to the degree of Doctor of Public Health in Industrial Hygiene. Following these educational curriculums, the school started the *Journal of Industrial Hygiene*, which now occupies a prominent place among journals exclusively devoted to this subject.

A number of state departments of health have established bureaus of industrial hygiene and have attained definite and worthy objectives in this field.

In 1916, a group of industrial physicians assembled and formed the American Association of Industrial Physicians and Surgeons. This professional group has been instrumental in preserving the ideals of medicine in industry.

THE SPECIALTY OF INDUSTRIAL MEDICINE

In the beginning, industry largely felt the need for the services of physicians because of the necessity of treating and preventing injuries. Gradually, however, it became apparent to the industrialist that there was a greater source of economic loss. Industrial physicians themselves soon became convinced not only that they must be able to cover the whole ground of sanitation and safety, spending an hour or two at the plant daily checking up injury cases, but also that there were more important considerations.

The efficient industrial physician of today gets out into the plant from time to time. He makes an adequate study of the conditions under which men work; namely, heating, lighting, ventilation, toilets, lockers, lunchrooms, shower-baths, drinking water, and the places provided for eating. He studies especially the chemical hazards involved in manufacturing processes; the dangers to eyes; the hazards to the skin; the risks of exposure to poisonous gases, dusts, heat, cold and electricity. He likewise recognizes the relative value of physical examinations prior to employment and of periodic examinations during the course of employment. He knows what physical defects exist in his industrial clientele; through a check-up system he is able to supervise the correction of these physical defects; he consults freely with the employment department and with the division of personnel relations, using their expert knowledge on job analysis and placement so that those with permanent physical defects may be placed on work where the effects will be minimized.

Preventive medicine in industry is further emphasized by the giving of first aid to minor illness before it becomes a major consideration. The various complexities and ramifications of mental hygiene in industry are given proper time and consideration, assisting in the establishment of an equilibrium in the important field of human relationships.

THE GENERAL PRACTITIONER

The general practitioner is distinctly an individualist. He deals primarily not with group but with individual problems and reactions. He is, of course, the most prominent figure in community medicine. Without him, millions of people would suffer.

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[*] From the Industrial Health Division, National Safety Council, Chicago.

[*] Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[†] Dr. Marbaker died, March 12, 1930.

Where well directed systems of health supervision in industry have been inaugurated, the general practitioner in the community has found this service distinctly helpful. Diagnostic protocols together with recommendations of procedure are sent to him by industrial groups for his guidance; physical defects are referred to him for correction; chronic diseases which are not considered the responsibility of industry are sent to him for prolonged observation and treatment.

It is easy for the general practitioner to say to the employee who consults him, "You must change your job," without knowing what this involves. The real answer to this situation was given by Dr. Harry Myers some years ago when he said "No doctor has a right to give such advice unless he is willing to go to the plant and personally see just what his patient is doing and under what conditions he is doing it." Contrariwise, it should be said that the industrial physician should not infringe on the rights of the family physician by habitually treating the members of employees' families. More friendly consultations would be desirable.

It should be emphasized that, when the general practitioner renders a service for an industrial employee, he is not necessarily cooperating with the industrial physician but directly with industry itself. He must remember that professional courtesy will be welcomed, however, by the industrial physician.

DEFINITION AND OBJECTIVES

Perhaps the situation can be better understood if the problem is stated briefly. Approximately fifty millions of people are engaged in industrial and mercantile pursuits in the United States, and on their ability to produce rests the progress of industry. The nation will probably continue to increase its industrial activities. Industries and industrial communities will make substantial progress usually in proportion to the care given to the health and efficiency of the backbone of industry —its workers. A well known industrial publication has expressed this point of view forcibly by the phrase "The public health is dependent on the health of a nation's workers."

Some years ago the National Industrial Conference Board defined the industrial physician in these words:

> A physician in industry is one who applies the principles of modern medicine and surgery to industrial workers—sick or well—supplementing the remedial agencies of medicine by the sound application of hygiene, sanitation and accident prevention, and who in addition has an adequate and cooperative appreciation of the social, economic and administrative problems and responsibilities of industry in its relation to society.

The objectives of industrial health practice have recently been stated as follows:

1. To study the health of the employee and help him realize the best health development of which he is capable. This is one of the fundamental principles of industrial hygiene.
2. To protect the worker against contracting disease from another, and also to prevent him from conveying disease to another. This is a basic public health measure and is accomplished chiefly by vaccination and isolation.
3. To study the natural health hazards of the industry and to provide measures for their control. Here accident prevention, first aid to injury and illness, and toxicology come into play.
4. To discover and call to the attention of the employee any defective health habits, especially those of a remediable type, and to assist and encourage the individual in securing proper correction. These procedures are considered to be characteristic of groups most advanced in industrial health work.
5. To enlist the cooperation of skilled medical specialists and organized groups for the correction of defects found among the personnel. This is a common practice among large industrial groups.
6. To provide special and optimum conditions for handicapped persons and to furnish satisfactory supervision for them, especially with regard to proper occupational placement.
7. To provide a dispensary service which will give prompt and efficient attention to slight indispositions, in the attempt to ward off major illness. This is the practice of first aid to illness and has been considered of great economic importance.
8. To instruct the employee how to lead a life of health and, if he is defective, to instruct him how to overcome, as far as possible, the handicap which he possesses. This covers the great field of health education and includes talks, health examinations, posters, health articles, pamphlets, periodic check-ups and the like.
9. To furnish technical guidance and information to all other departments of any given company, with a view of improving the mental, moral and physical status of the group. This includes placement, illumination, ventilation and chemical hazards.
10. To act as a coordinating mechanism on matters of personal health between the company, the employees, other physicians and all other existing health agencies, such as state and city boards of health and state and county medical societies.

THE ANSWER

It is essential that the point of view of the industrialist be understood. He is confronted always by group reactions and problems. He thinks not in terms of individual units but of aggregations. He is also under the burden of economic consideration.

It must also be said that industry, not medicine, initiated the idea that accidents could be reduced to a minimum and that workers are entitled to proper working conditions in which accident and health hazards can be eliminated as nearly as humanly possible.

With these things in mind, what can be done?

The answer is largely one of standards of excellence.

One must go back to the student in the medical school. Curriculums should be so constructed and arranged that the medical student will be exposed to the fundamentals of industrial medicine. Not only must the undergraduate be provided for, but the postgraduate courses should be so correlated and so organized that greater opportunity will be presented for the promulgation of the basic fundamentals of industrial hygiene among established practitioners.

More state and city health commissions should include industrial hygiene in their programs and investigations; county medical societies should more commonly have sectional meetings; hospital staffs should provide clinical material for periodic conferences.

National and constituent medical associations should study the problems with industrialists; through such study, recommendations for standards and procedures could be given officially to industry; liaison arrangements of a flexible type governing relationships of the industrial physician and the general practitioner could be officially recommended.

Ratings should be given to hospitals and clinics where industrial work is carried on.

Finally, to assist the general practioner and the industrial physician further, an official publication of industrial medicine or a section devoted to industrial medicine in a recognized medical journal could be sponsored and maintained.

SUMMARY

The principles, standards, objectives and problems of industrial medicine should be given wider expression through the following mediums:

1. Medical school curriculums.
2. Hospitals and clinics.
3. State and city departments of health.
4. National and constituent medical associations.
5. Official medical publications.

CONCLUSIONS

The physician is and always will be the leading figure in the field of industrial health; as a professional technician he has gained recognition, but as an administrator it must be said that he has not clearly seen his responsibilities or his opportunities.

Industry will not brook dictatorship, but medicine must officially present a united front if it would continue to assume responsibility and leadership in industrial medicine.

20 North Wacker Drive.

ABSTRACT OF DISCUSSION

DR. WILLIAM ALFRED SAWYER, Rochester, N. Y.: Industrial medicine is the legitimate offspring of general medicine and genuine industrial needs; this requires and develops special qualifications. More men are needed who are well trained to do this type of work. Postgraduate training for this field has not borne enough fruit. Just recently I heard the encouraging news that two medical schools have made arrangements to have every member of their fourth year classes spend some time in an industrial medical department. When students are graduated who have had actual experience in such work there will be fewer misunderstandings and more substantial progress. The practice of medicine has been individualistic in the past—in other words, a "one-man-show"; but in view of changes generally, it cannot remain so. Efficiency, service that is adequate and prompt, cooperation, with due consideration to the economics of the situation, are factors of importance in any field of endeavor. The old style doctor, like the old style farmer and the old style corner grocer, worriedly wonders why he cannot make as much money as a good carpenter does. He knows something is wrong, but it seldom occurs to him that his entire professional method may have become antiquated. If industrialists see the trend of the times and work with it, they cannot be blamed. In the light of any serious study of modern science, industrial medicine is inevitable. Indeed, it is only just beginning. All too often the medical profession is caught napping. Lay groups aware of certain needs in community life propose and inaugurate new measures, while organized medicine stands by and offers nothing but destructive criticism. Not once have I heard organized medicine offer a better plan of caring for the health problems of industry. Some form of medical supervision for workers is necessary. Can we not rationalize this situation on some such basis as this: First of all, it must be recognized that far too much *incipient illness* goes undetected and untreated among workers in industry. There is a tremendous waste here, which alert medical men ought to be interested in caring for. Workers will not seek early and timely medical attention, because of the cost. The industrialist has seen this and, with his customary action, has made an attempt to solve it. Medical men have known it for generations but have done nothing. The private practitioner cannot provide adequate diagnosis for the worker for the price the worker can pay. He gives him the best he can. Is there not a chance here for a little team work? Industry can furnish the diagnosis. The practitioner then can utilize these observations to give the worker adequate treatment. This is already the practice in many instances and seems to work to the advantage of all concerned. It is an ideal arrangement. It is the future solution of some of the problems of adequate medical care for all.

DR. G. H. WOOD, Detroit: The statement was made that the difference between the industrial physician and the family physician is that the industrial physician sees and thinks in terms of groups, in terms of masses, while the individual physician sees and thinks in terms of individuals. That is an important distinction. That is just one of the reasons why, in preparing our plans of organization and procedure in industrial medicine, we ought to keep in mind, as our goal, the ideal in the practice of medicine as it has been handed down to us through the ages. The family physician is the one who deals with individual, personal health. That is historic. The industrial physician comes in to handle the mass influences or the group conditions under which the worker spends his working hours. The industrial physician has plenty to do in looking after the light, heat, dust, moisture, poisons and all the various hazards that occur in the hours of industrial employment. When it comes to personal advice as to what the employee eats when he is at home, how long he sleeps, how much he dances, how much he drinks, what kind of liquor he gets and where he gets it, and so on, it may be a matter of dollars and cents to the employer, but I ask the question, sincerely and deliberately, Is it really the employer's business? And, if it is not the employer's business, is it the industrial physician's business? I want to leave these questions with you to answer, yourselves. My personal opinion is that we should be very cautious about invading the relations between the private physician and the individual.

CHOLECYSTOGRAPHY

AN ANALYSIS AFTER SIX AND ONE-HALF YEARS' APPLICATION *

SHERWOOD MOORE, M.D.
ST. LOUIS

The underlying physiologic and radiologic principles of cholecystography have altered little during the six and one-half years since it was first carried out at the Washington University Medical School, Dec. 1, 1923. There have been, however, certain changes in views or detail of methods and other points. It is proposed to discuss these and epitomize the sum of our experience.

Of the substances usable for cholecystography, phentetiothalein sodium -N. N. R. (phenoltetraiodophthalein sodium) is preferred. In addition to being an efficient test of liver function, this dye is less toxic than others. It produces a more desirable cholecystogram with a smaller quantity of dye. The use of substances other than the halogenated phenolphthaleins for visualizing the gallbladder have not proved practical in our hands.

In general, whatever the dye employed in cholecystography, accuracy demands that it be given intravenously, for a known quantity of the substance must reach the circulation if the resultant gallbladder image is to be exactly evaluated.

Routine administration of the dye is entrusted to a single individual of the status of an assistant resident physician. All injections are made at a stated hour. An ample supply of the dye of 8 per cent concentration, in sterile aqueous solution, is ready at hand. After insertion of the needle, a sufficient amount of physiologic solution of sodium chloride is run into the vein to assure that there has been an accurate puncture. By means of a two-way valve, an amount of dye solution is then slowly run into the vein by gravity until the proper quantity for the patient's weight has been administered. Saline solution is then run into the vein to insure that all traces of the dye are completely removed from the blood vessel. We consider 2.5 Gm. of phentetiothalein sodium the proper quantity for an adult of average size (150 pounds, or 68 Kg.). The amount of dye solution given is varied above or below this quantity, according to the patient's weight. We have found that it is desirable to have a greater dilution of the dye than was formerly advocated, because concentration of the latter increased the likelihood of injury to the vein wall. In its mildest form, this event is manifested as a painful sensation in the vein. In the severer cases, there may be a phlebitis. Since the inauguration of the present method there has been a gratifying decrease in the number of disagreeable effects, both local and general, which have followed the intravenous introduction of cholecystographic dyes.

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* From the Washington University School of Medicine.

* Read before the Section on Radiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930

If oral administration of the cholecystographic dyes is employed, any of the standard methods that will insure the passage of the dye from the stomach into the intestine will be satisfactory. Oral cholecystography in our hands has been employed for diagnostic purposes only in special cases; for example, in those with an obscure abdominal complaint in which radiologic gastro-intestinal examination gives no signs, and in which the symptoms are insufficient to warrant the intravenous procedure. It is occasionally also employed in obese subjects when there is difficulty in finding a vein suitable for puncture. Our experience has been that more subjective discomfort (usually in the alimentary tract) follows the oral than the intravenous administration of cholecystographic dyes. These untoward manifestations are chiefly nausea, vomiting and diarrhea. Vomiting and diarrhea raise a doubt as to whether sufficient dye is absorbed from the alimentary tract to give dependable data as to its concentration in the gallbladder. Phentetiothalein sodium is valueless as a test of liver function when given orally, because the quantity of dye absorbed is unknown.

Table 1.—*Incidence of Reactions in 1,956 Cases of Intravenous Administration of Phentetiothalein*

	Reaction, 666 Cases: 34 per Cent of Total Cases		
No Reaction 1,290 Cases	Mild (First Degree) 385 Cases	Severe (Second Degree) 281 Cases	Third Degree Reaction
66 per cent of total cases	57.8 per cent of total reaction 19.7 per cent of total cases	42.2 per cent of total reaction 14.3 per cent of total cases	None

It is our practice to rate the reactions of cholecystography according to their intensity into three groups, of the first, second and third degree. First degree reactions are those with any subjective sensation which the patient may experience. Second degree reactions are more intense subjective feelings than the preceding, and, in addition, there may be urticaria, giddiness or malaise. Those of the third degree consist of a fall in blood pressure and a tendency to syncope. The reactions in 1,956 consecutive cases of intravenous administration of phentetiothalein sodium are given in table 1.

The intensity and frequency of reaction with other dyes were greater than the aforementioned. Reactions are virtually ignored in intravenous cholecystography, provided the following conditions are fulfilled: The patient should not be too debilitated nor have a low blood pressure concurrent with cardiac or arterial disease.

Cholecystographic estimation of the condition of the gallbladder is based on the fact that the normal organ receives the dye, concentrates it, alters in size (or shape), and finally evacuates its contents. This sequence can be assured only if the organ is at rest during the foregoing cycle. A diseased gallbladder has its functions interfered with, and the departure from normal behavior is proportional to the degree of impairment of the organ. The test reveals anatomic changes only incidentally or inferentially.

The fat meal is not used for testing the emptying capacity of the gallbladder, experience indicating that if the organ is visualized it will empty itself; also, that any impairment of its wall that might affect the organ's ability to void its contents would have as concomitants obvious deviations from the normal cholecystographic behavior.

In disease of the liver of such extent that the gallbladder function is affected, there would scarcely be occasion to attempt cholecystography as the diagnosis would probably be obvious. Obstructive lesions in the ducts of the biliary tract may be placed in the same category and for the same reasons. Obstructive lesions of the cystic duct constitute an exception. In such a case the gallbladder would almost certainly be pathologic, and this diagnosis would be difficult to achieve. It is pertinent at this juncture to state that acute disease of the biliary tract is a contraindication to cholecystography, not because of any inherent danger in the procedure but because an inconclusive finding will almost certainly result from the test in such cases.

There have been instances in which the radiologist considered the cholecystographic behavior normal but in which the symptoms indicated cholecystitis. The microscopic examination of the gallbladder revealed little or no pathologic change. However, grossly, in this and all similar cases there were extensive adhesions between the gallbladder and the adjacent structures; in other words, there was a pericholecystitis. Such cases form a group that will probably always give rise to diffculty in correct cholecytographic interpretation. Mistakes arising from this cause are to be anticipated until such time as the symptoms of disease in the right upper abdominal quadrant are better differentiated into their individual components than is the case at the present time. The preceding prompts the question, What is pericholecystitis, and what are its symptoms? Does chronic pericholecystitis remain confined to the serosa of the gallbladder, or do the remaining portions of its wall ultimately become involved, with loss of function? My experience with cholecystography leads to the conclusion that patients may suffer from what appears to be gallbladder disease, when in truth there is only a localized peritonitis (with adhesions) in its vicinity. The etiology of pericholecystitis has been discussed elsewhere,[1] and it is sufficient to recall here that it originates in two ways, as shown by cholecystographic studies—one from the gallbladder itself, and the other from neighboring structures. In the first (pericholecystitis of intrinsic origin) there is a total absence of the concentrating function of the gallbladder. In the second (pericholecystitis of extrinsic origin) there is an approximately normal concentrating function of the gallbladder, with rarely demonstrable deformity or fixation of the organ. Is extrinsic pericholecystitis a stage in the process of the final and complete loss of cholecystic function such as is the case in the pericholecystitis of intrinsic origin? In the group with pericholecystitis are found all the errors of diagnosis in which the test resulted in normal cholecystograms and operation revealed a pathologic gallbladder. There are ten of these in our operative material. In this series, notes by the surgeon generally refer to extensive adhesions but the pathologic examination reveals little anatomic change except in the serous coat. Pericholecystitis is dealt with at length for the reason that it has many pitfalls in cholecystographic interpretation.

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[1] Graham, E. A.; Cole, W. H.; Copher, G. H., and Moore, Sherwood: Diseases of the Gall Bladder and Bile Ducts, Philadelphia, Lea & Febiger, 1928.

In the material studied, the order of frequency of the various signs of the pathologic gallbladder and the order of accuracy of preoperative diagnosis are shown in table 2.

Table 2.—*Order of Frequency of Various Signs of the Pathologic Gallbladder and Order of Accuracy of Preoperative Diagnosis*

	Cholecystograms		Operations		Operative Confirmations			
	Number	Per Cent of Total Pathologic Cases	Number	Per Cent of Total Operations	Number	Per Cent Correct	Order of Frequency of Signs	Order of Accuracy of Preoperative Diagnosis
Deficiency of concentration or "thin" or "faint" shadow	733	46.8	167	41.1	164	98.2	1	4
Nonvisualization or absence of concentration	504	32.1	146	35.9	146	100	2	1
Pericholecystitis	122	7.8	23	5.7	22	95.7	3	5
Calcified gallstones	97	6.2	40	9.9	40	100 *	4	3
Noncalcified gallstones	67	4.3	19	4.7	19	100	5	2
Gallstones (?)	44	2.8	11	2.7	10	90.9*	6	6
Totals	1,567		406		401	98.77		

* Pathologic gallbladder.

Table 3.—*Incidence of Gallstones**

Calcified Stones: 97 Cases (59.1% of Total Stones Diagnosed)				Negative Stones: 67 Cases (40.9% of Total Stones Diagnosed)	
No Dye in Gallbladder 54 Cases		Dye in Gallbladder 43 Cases		Dye in Gallbladder	
Operations	No Operation	Operations	No Operation	Operations	No Operation
25	29	15	28	19	48

* There were 164 preoperative diagnoses of gallstones; 10.46 per cent of total pathologic cholecystograms.

There is a type of stone found in the gallbladder with normal function which is not otherwise discoverable, that is, the so-called negative or cholesterol stone. In such cases the gallbladder can still concentrate the bile, and these stones appear as filling defects which are characteristic in appearance. Such stones have been found on sixty-seven occasions among the pathologic cholecystograms. Nineteen of the patients were operated on, and in all the stones were found. This is a suitable point for a few necessary words as to gallstone radiography. The latter is a test of physical quality, and hence roentgen observations in the case of gallstones, whatever their nature, reveal only certain of their physical properties. It throws no light on their origin, etiology, mechanism of formation or the part that they play in cholecystitis, either as resultants or as causative agents. Reference to table 3 reveals that there were fifty-four examples of gallstones in which no dye was present in the gallbladder, and forty-three in which only a small amount was observed. Needless to say, cholecystography is unnecessary for the discovery of such gallstones. There is this interesting point, however, in the ninety-seven cases of calcified calculi: the concentrating function of the gallbladder was materially affected. In five cases, the concentration of the dye in the gallbladder approximated normal. These five cases are examples of the pathologic gallbladder with normal cholecystographic behavior. Because of the experience with calcified gallstones, radiographic search for them precedes cholecystography. If intra-abdominal calcification unusual in character or location is found, cholecystography may be helpful in reaching a conclusion as to its nature. Pathologic reports from the operations done in 418 cases are proof, if it were needed, that the demonstration of a calculus of either the calcified or the cholesterol type is of small consequence, since 157 gallbladders containing stones have been found in 395 cholecystectomies in which there was no cholecystographic evidence of their existence. This is in strong contrast with the finding of only fifty-eight cases of stones diagnosed preoperatively. The cholecystographic observations of patients with cholelithiasis indicate that the method leaves much to be desired.

Low in the scale of accuracy of preoperative diagnosis is the cholecystogram which reveals a gallbladder with a deficiency of the concentration function, having a "thin" or "faint" shadow. It is in this class of cases that the clinical and cholecystographic opinions most frequently diverge. It is one in which the examiner needs to be extremely wary, if for no other reason than because of the technical variation that may be present in the films. We formerly attached much importance to delay in concentration of the dye and late appearance of the gallbladder shadow or its persistence beyond the twenty-four hour period. Greater experience has led us to place these cases in the general class of deficiency of gallbladder function allied to "thinness" or "faintness" of gallbladder image. The persistence of the shadow beyond the twenty-four hour period is so dependent on food intake and activity that in our view its diagnostic importance has dwindled virtually to the vanishing point.

Up to April 15, 1930, we have had 3,044 cholecystographic examinations, and in 1,567 of them radiographic diagnosis of a pathologic gallbladder was made. Only 406 patients have had operations on the biliary tract. This seems to be a small number of operative cases relative to the total of examinations. However, many of these were made in order to build up experience rather than with the object of establishing a specific diagnosis. Analysis of the reasons for nonoperation in 622 hospitalized patients is shown in table 4. The remaining patients with pathologic gallbladder and who had no operation were ambulatory and hence could not be adequately followed up.

That such a small proportion of the total number of cholecystographic patients was operated on, coupled with the long list of those pronounced normal and not otherwise checked, might in some quarters be considered as indicative of a weakness in this diagnostic method. The normal cases number 1,477. Among them symptoms and clinical evidence have not been strong enough to lead to the opinion that the cholecystographic examination was in error, or that operation was in order, except in ten cases. These have been fully discussed previously in connection with pericholecystitis.

Table 4 may be taken as evidence of one of the weaknesses of cholecystography. This procedure has been stigmatized in several quarters because it was what was designated as a "functional test" in contradistinction to one that reveals actual pathologic anatomy. The function of the gallbladder, as the foregoing series would indicate, may be totally lost and the patient be symptom-free. If he is in this happy state, and so remains, there is no reason to carry out surgical or other treatment.

One might conclude from comparing the tables of the cases in which operations were performed and those in which operation was not performed that the test is of little value because, after all, physical signs and symptoms dictated the method of treatment. Against such an opinion, however, is the fact that the signs and symptoms of diseases of the biliary tract, contrary to general belief and teaching, are most uncertain and inconsistent. Consequently, the evidence of the tables does not materially affect the value of cholecystography.

A word in regard to the relative merits of the oral and intravenous methods of dye administration. What are considered dependable observations, I believe, are secured only in those cases in which the test has been done intravenously. The gallbladder that is promptly visualized, concentrates the dye, and empties without delay in the oral method is a normal gladdbladder. The observations in pericholecystitis, that is, persistent deformity and fixation of the gallbladder, and calculi (this in reality means cholesterol calculi), when found by the oral method, are as dependable as when they are found by the intravenous. Any deviation from this behavior when the oral test is employed, I feel, cannot be relied on, because of the numerous factors influencing the absorption of the dye from the alimentary tract. Such cases should be followed up by an intravenous test.

Table 4.—*Analysis of Reasons for Nonoperation in 622 Hospitalized Patients*

Major illness elsewhere and poor operative risk	321
Operation refused	94
Operation postponed	53
No reason assigned	78
Insufficient clinical evidence of gallbladder disease	54
Medical treatment advised	22
Total	622

Against the thesis that pathologic processes of the gallbladder affect its function of concentration are certain cases which constitute exceptions. Cholesterol stones are observed in cholecystograms because the concentrating function of the gallbladder is more or less preserved. Considering the possible relationship between the formation of cholesterol stones and cholesterosis of the gallbladder, it is quite possible that a considerable number of cases of cholesterosis present cholecystograms which are pronounced normal. Even in the cases in which there are calcified stones, there are five examples in the material presented in which the concentration of the dye in the gallbladder approximated normal. Another example of the pathologic gallbladder which may have a normal concentrating function is found in the group with pericholecystitis. This type of case is the one that I believe gives the largest proportion of the errors chargeable to cholecystography.

CONCLUSION

Intravenous cholecystography is the most accurate method now in use to determine the condition of the gallbladder. Oral application of the test is valuable to prove the organ normal and to determine the existence of cholesterol stones and deformities of the gallbladder. Nonvisualization and faint visualization of the organ with the oral method should be confirmed by an intravenous test. With the intravenous method, the pathologic examintion of excised gallbladders shows a high degree of accuracy for the preoperative diagnosis. Errors in preoperative diagnosis are found chiefly in the cases of pericholecystitis, and possibly in examples of cholesterosis of the gallbladder (there have been no examples of this). In view of the fact that only 58 of 220 cases of stones were demonstrated preoperatively, the percentage is so low that the discovery of stones cannot be thought to be a valuable property of cholecystography. Therefore, a radiographic examination of the gallbladder region should precede cholecystography. Normal cholecystographic behavior can occur with both calcified stones and cholesterol stones, but this behavior is exceptional. It can also occur with extensive pericholecystitis. Such observations are not sufficiently frequent, however, to constitute an indictment of the usefulness of cholecystography in the diagnosis of cholecystitis and its associated pathologic conditions.

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ABSTRACT OF DISCUSSION

Dr. James T. Case, Chicago: I now have given the intravenous Graham test in approximately 5,000 patients and some hundreds with the oral method. I naturally speak from a larger experience with the intravenous method. I noted that Dr. Moore does not continue to use the fatty meal for estimating the emptying time of the gallbladder. I myself continue using the fatty meal, observing the ability or inability of the gallbladder to contract, and especially for the reason that when there are suspicious vacant spots in the filled gallbladder shadow one can speak much more definitely about them when the gallbladder shadow is contracted and its contents more condensed. I have discovered a few patients with a marked delay in gallbladder evacuation, the delay extending to seventy-five or even a hundred hours, in which subsequent events showed that I was dealing with carcinoma of the pancreas or stone in the cystic duct itself—very small gallstones which were hardly palpable. In some of these cases the gallbladder shadow persisted as long as a hundred hours without perceptible diminution and without change in size. I notice that in one of his tables Dr. Moore's percentage of accuracy of diagnosis of pericholecystitis is rather high; as given in the table the accuracy was 95 per cent. I was rather surprised myself in going over some of my own operative cases to realize that the percentage of correct diagnosis of pericholecystic adhesions was high. I think I may say that pericholecystitic adhesions are suggested by a gallbladder outline of irregular nature or by displacement with fixation when the displacement is not suggested by some extrinsic lesion. Sometimes the pressure effect of some adjacent organ can be seen. Inability of the gallbladder to empty itself often suggests pericholecystitic adhesions. The percentage of stones found in my cholecystographic series is higher than Dr. Moore's. I am at a loss to figure out the discrepancy. In my previous work I have spoken of "absence of shadow," "stone positive," in which stones were evidently present by nonopaque areas, "normal cases," and then a fourth group, which is called "pathologic, noncalculous," because experience shows that they were essentially noncalculous. In 121 cases that were reported "pathologic, noncalculous" on that basis, six cases of stones were found at operation. That is an error of a little less than 5 per cent. I included in that series thirty-six cases of "normal," eighty-five cases in which I said the gallbladder was "pathologic, noncalculous." I based that pathologic and noncalculous opinion on deficiency of the concentrating function, as shown by a faint shadow, or irregular contour of the gallbladder suggesting adhesions, or marked delay in emptying of the gallbladder or some combination of these.

Dr. B. R. Kirklin, Rochester, Minn.: I am satisfied that the criticism of the results obtained generally with the oral method is due to the technic that is used in applying this method. My own results were not entirely satisfactory until I adopted the technic that I use at the present time. If one checks carefully the results obtained by the men using the oral method and compares them with those obtained by the use of the intravenous method, I am sure that there is little difference. At the Mayo Clinic the following technic is used: Each patient receives 4 Gm. of tetiothalein sodium (N. N. R.) dissolved in 1 ounce (30 cc.) of distilled water. It is important that the aqueous solution of this drug is not more than twenty-four hours old; therefore, the individual doses should be prepared each day. The following instructions are given to the patient with the dye: "1. At 6 p. m. eat supper of usual amount, but avoid eggs, cream, butter and other fats. 2. At 7 p. m., or immediately after supper, empty entire contents of this bottle (the dye) into a glassful of grape juice, stir well and drink all. 3. Do not take a laxative. 4. At 7 a. m. the morning of the test take a rectal injection of warm soap suds until the water returns clear. 5. Do not eat breakfast; you may drink water, black coffee or clear tea." I am convinced that better results are obtained with a full evening meal than with a light meal, and also that the best shadows result when the dye is taken shortly after supper rather than two or three hours later. Cholecystograms are made at fourteen and sixteen hour periods, and again at twenty hours, after the patient has taken a glass of half milk and half cream with his lunch. A Potter-Bucky diaphragm is used for all gallbladder work, with a standard exposure of from one-half to one second, with a 26-inch target film distance, the kilovoltage being varied according to the thickness of the patient. It is essential to keep the exposure time as short as possible in order to eliminate the slightest movement of the patient; otherwise gallstone shadows may be completely blotted out. My experience is in accordance with that of Dr. Moore; namely, that the normally functioning gallbladder is the least reliable finding that there is in cholecystography. Even with the oral method I have found a higher percentage of diseased gallbladders that function normally than he is reporting with the intravenous administration of the dye. I am reluctant to attempt to diagnose or exclude pericholecystic adhesions.

Dr. Sherwood Moore, St. Louis: Though it has been tried in our clinic, oral cholecystography has not been satisfactory. Possibly this is our own fault. Neither cholecystography nor the treatment of cholecystitis is to be entered on lightly, and we feel that, in both, absolute accuracy is essential. I appreciate that Dr. Kirklin is in the same position as regards accuracy. We feel that the necessary accuracy can be secured only with the intravenous method of cholecystography.

The Antiquity of Disease.—From the researches of Rudolf Virchow, the father of paleopathology, Bernard Renault, Roy L. Moodie and others, it has been demonstrated that the history of disease properly begins with the early Paleozoic or Proterozoic, 100,000,000 or more years ago. The fossil remains of primitive vertebrates of the Paleozoic era have yielded abundant evidences of such diseases as dental caries, pyorrhea alveolaris, osteomyelitis and fracture, diseases which apparently have changed but little, if at all, in the past 100 million years. As examples may be mentioned the fact that caries has been found in the bones, scales and teeth of fishes from the Permian period in France; the mandible of a three-toed horse shows caries which resulted in absorption of the alveolar margins and exposure of the roots of the teeth, i. e., the sequence of events which may occur in pyorrhea alveolaris as we know it today; and caries of Pleistocene elephants has been noted. One of the most interesting facts of recent development is that arthritis deformans, a disease found in so many Egyptian mummies, is identical with the "cave-gout" (Höhlengicht) which Virchow, in 1870, reported in bones of a Pleistocene cave bear.—Oliver, W. W.: Stalkers of Pestilence, New York, Paul B. Hoeber, Inc., 1930.

SPRUE

SOME POINTS ON ETIOLOGY, DIAGNOSIS, AND ESPECIALLY TREATMENT *

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For a time it looked as if the etiology of sprue had been settled by Ashford[1] in *Monilia psilosis.* Subsequent encounters with cases of true sprue in which this yeast was not found although careful laboratory technic was followed in the examinations of stools, including the improvements and modifications, leave the disease, originally described by Hillary of Barbados in 1776, in its etiology gracefully suspended between doubt and question.

Especially confusing are the instances of the irregular presence of *Monilia psilosis* at different times in the same case, a long period of its absence, the clinical symptoms and conditions, and the typical character of stools showing no change. D'Herelle[2] deduces from bacteriophagic work with stock antidysentery strains adapted to the Flexner and Hiss *Eberthella paradysenteriae* that the main causative, or at least the contributory agent of this disease is, as Morison and Martin suggest, a paradysentery bacillus.

Sprue, an adult disease, found practically always among white people, and encountered twice as often in women as in men, a problem in diagnosis in the early stages and the atypical cases, and simple in the typical cases, still works its havoc in many parts of the world. In the countries in which it is most often seen the people are as much alarmed at sprue as at carcinoma. One needs but to handle enough individuals from such quarters of the globe as Cuba, other West Indian Islands, Central America and the northern countries of South America to realize this.

In the cases with slow and insidious onset (about one third of all cases), mistakes in diagnosis are commonly made. When the onset is that of a severe type of digestive disturbance with continued diarrhea, especially in the morning, sprue should be suspected; and when this is present with loss of weight, sallow complexion and anemia, mouth symptoms (present in about three fourths of the cases) and the characteristic bowel discharges, the diagnosis is comparatively easy. Not infrequently, however, diagnosis of "beginning sprue" or "near sprue" and the like is made when other reasons for the diarrhea are the cause. Among these are instances of *Ameba histolytica* infections, bacillary dysentery, more particularly the chronic forms represented in ulcerative colitis, digestive and neurologic diarrhea and biologic intestinal toxic states with irritable colons. Because a person in a warm climate where sprue is endogenous and the people are fearful acquires a more or less continued diarrhea, he should not be taken advantage of by vague diagnoses of sprue. In these countries are found most of the diarrheal disorders, and these other diarrheal diseases and disorders should always be thought of before sprue is mentioned.

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* Read before the Section on Gastro-Enterology and Proctology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930

[1] Ashford, B. K.: Am. J. M. Sc. **154**: 157 (Aug.) 1917.

[2] D'Herelle, Felix: Bacteriophage and Its Clinical Applications, 1930, p. 196.

It is believed that appropriate and timely treatment cuts short the incidence of chronic sprue in about one third of the cases, this being mostly a matter of dieting. Since diet, whether milk, high protein or fruits, is lacking in results in the chronic case, there is some question as to whether in instances of recovery, the cases were really controlled by diet or a natural recovery was accomplished. There is agreement, however, that dieting is always in order in the acute and subacute case. It is believed that in at least two thirds of the chronic cases no benefit is derived from any kind of dieting or other types of treatment, although here and there, if dieting is kept up for six months or more benefit is sometimes seen. Even here, as in the acute and subacute cases, it may be that the disease runs itself out irrespective of dieting. The rate of mortality is high, as much as 80 per cent in the chronic forms, and it is this, with the liability of chronicity, that has caused dread of the disease among the people of these warm countries.

The present article pertains to treatment rather than to diagnostic problems, and it is based on the results accomplished in ten consecutive cases of sprue, the results being gratifying enough in our opinion for report. These comprise essentially four methods of treatment: (1) high liver diet (with or without excess vitamins); (2) transduodenal lavages; (3) correction of an intestinal infection, and (4) living for a time in colder climates. These are stated in what seems to us the order of their relative importance.

Blood transfusions, injections of iron preparations, and the types of diets formerly in use did not produce worth while results in our hands. When Minot and Murphy[3] advanced the employment of liver diets for pernicious anemia, the blood pictures found in sprue together with the frequent presence of achylia gastrica suggested the use of a similar diet in sprue to us in December, 1920. The value of the diet was more or less confirmed later by Ashford,[4] Williams,[5] Holmes and Starr,[6] Smith,[7] Baumgartner and Smith,[8] Reed and Ash,[9] and Porter and Rucker.[10] In all the suggested diets, liver was taken as food, and not in the form of extracts. The type of diet generally employed was as follows:

Calf's or beef liver cooked in any form, taken in at least one or two meals every day, the day's quantity being from 120 to 240 Gm. (4 to 8 ounces) cooked weight. An equal amount of lamb's kidneys may be substituted for the liver, entirely or in part.

Considerable liver sausage, blood sausage, and the marrow from grilled or roasted long bones that have been split, the marrow to be eaten with salt and pepper spread on toast. The sausage may be fried. One of these foods should be partaken of each day. In addition, 120 Gm. (4 ounces) of beef or mutton muscle (meat), cooked in any way, should be taken daily.

No less than 300 Gm. (10 ounces) cooked weight of the following vegetables (especially lettuce, lentils and spinach): lettuce, cucumbers, spinach, asparagus, rhubarb, endive, marrow, some sauerkraut, beet greens, dandelion, Swiss chard, celery, tomatoes, Brussels sprouts, watercress, okra, cauliflower, egg plant, cabbage, radishes, leeks, string beans, broccoli, olives, pumpkin, turnip, kohlrabi, squash, beets, carrots, onions, mushrooms, cranberries and lemons.

Each day from 250 to 500 Gm. (8½ to 17 ounces) of fresh fruit, especially bananas, apricots, strawberries, pineapples, oranges and grapefruit.

The equivalent of 45 Gm. (1½ ounces) of fat from butter and fresh cream (there is 16 per cent of butter fat in cream that settles in milk bottles, and 40 per cent in the XXX or heavy whipping cream). The cream may be added to any food or taken as suits the patient.

If desired, an egg each day and several glasses of milk. In addition to the foods mentioned, bread, especially dry and crusty, potatoes, and cereals in abundance so that weight is kept up or added.

Sugar, which may be taken in small quantities; but very sweet foods are not allowed.

When practicable, additions were made to the vitamin contents as follows: cod liver oil in doses of from 4 to 10 cc. for vitamins A and D; orange, pineapple, and fruit juices were increased for A, B and C; yeast, peas and lentils for B; tomatoes, lemon juice, oysters, apples and bananas for C; and lettuce, milk and fats for E.

Transduodenal lavages with hypertonic saline solution of 9 Gm. each of sodium sulphate and sodium chloride in 1,000 cc. of water at 104 F. was used before bedtime to clear out the fermenting food residue of the day's meals. As a rule the quantity introduced was rarely over 500 cc. and was conditioned by the number of bowel movements produced and the general state of health. As improvement took place, these were employed less frequently or the quantity of solution was reduced.

The removal to colder climates was only partly practicable. Most of our patients came under observation in the summer months when the weather in New York was warm, and those requiring active treatment had to remain in the city for a time before going away to the northern parts of the country. Those that could be sent to the mountain regions or to Canada at once were sent with nurses, usually to places where blood counts could be made.

When distinct benefit had been established, biologic studies of the feces were made and when a definite infection of the dysentery, paradysentery, *Salmonella*, *Eberthella* or *Escherichia* forms were present biologic treatment with rectal or subcutaneous vaccines or antagonisms for the control of them were used. This, as previously suggested, is at times the least, and at other times a most important item for complete results in recovery, depending usually on the pathogenicity of the infecting organisms.

All the cases were handled in the foregoing ways with modifications here and there, and of these the following brief reports are offered:

REPORT OF CASES

Case 1.—Mrs. A. G., from Havana, had symptoms of cramps, vomiting, morning diarrhea, loss of weight, sour regurgitation, glossitis, and anemia, of one year's standing. The stools, though characteristic of sprue, were negative for *Monilia psilosis; Oxyuris vermicularis* was present. She was given two months' active treatment. The blood count rose from 2,280,000 red blood cells with 65 per cent hemoglobin to 4,800,000 red blood cells with 80 per cent hemoglobin. The last count was sustained. The patient made a complete recovery.

Case 2.—Dr. A. P., from Bogota, Colombia, had symptoms of morning diarrhea with remissions, loss of weight, progressive weakness, tremors and aphthous ulcers, of four years' standing. The stools were characteristic of sprue but negative for *Monilia psilosis*. Several blood transfusions were necessary. Three months' active treatment was given, during which time the blood count rose from 1,800,000 red blood cells with 35 per cent hemoglobin to 4,800,000 red blood cells, with 70 per cent hemoglobin. The last count was sustained. His recovery was complete.

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[3] Minot, G. R., and Murphy, W. P.: A Diet Rich in Liver in the Treatment of Pernicious Anemia, J. A. M. A. **89:** 759 (Sept. 3) 1927.

[4] Ashford, B. K.: An Evaluation of Liver Extract in the Treatment of the Anemias of Sprue, J. A. M. A. **91:** 242 (July 28) 1928.

[5] Williams, J. P.: Virginia M. Monthly **56:** 23 (April) 1929.

[6] Holmes, W. H., and Starr, Paul: A Nutritional Disturbance in Adults Resembling Celiac Disease and Sprue, J. A. M. A. **92:** 975 (March) 1929.

[7] Smith, L. W.: Philippine J. Sc. **24:** 147 (April 24) 1924.

[8] Baumgartner, E. A., and Smith, G. D.: Pernicious Anemia and Tropical Sprue, Arch. Int. Med. **40:** 203 (Aug.) 1927.

[9] Reed, A. C., and Ash, J. E.: Atypical Sprue, Arch. Int. Med. **40:** 786 (Dec.) 1927.

[10] Porter, W. B., and Rucker, J. E.: Am. J. M. Sc. **179:** 310 (March) 1930.

Case 3.—Captain J. C., United States Army, was stationed for three years in the Philippines. He developed symptoms of diarrhea, indigestion, loss of weight, progressive weakness and sore mouth, which continued for three years. At examination, the stools were found characteristic of sprue but negative for *Monilia psilosis* and positive for *Endameba nana, Chilomastix* and *Bacillus enteritidis.* He was given two months' active treatment and three months' biologic treatment and was in Canada for six months. His blood count increased from 2,100,000 red blood cells with 42 per cent hemoglobin, to 4,850,000 with 77 per cent hemoglobin. He made a complete recovery.

Case 4.—Dr. R. P., from Puebla, Mexico, had symptoms of loss of weight, morning diarrhea, glossitis, anemia and excessive flatus, of two years' standing. The characteristic stools were positive for *Monilia psilosis,* other types of yeast, *Trichomonas intestinalis, Salmonella para-aertrycke* and *Streptococcus hemolyticus* II. Active treatment was administered for seven weeks and biologic treatment for six weeks; no climatic treatment was given. On examination his blood count was 2,900,000 red blood cells with 46 per cent hemoglobin, and rose to 4,740,000 red blood cells with 82 per cent hemoglobin. The patient reports that he has occasional diarrhea (this I do not think is due to sprue); his general health is good.

Case 5.—A. P. St. J., a man, from Porto Rico, had symptoms of morning cramps and diarrhea, anemia, loss of weight and progressive weakness of nine months' standing. The somewhat characteristic stools were negative for *Monilia psilosis,* but ova were found that resemble *Macrostoma mesnili.* The patient was given nine weeks' active treatment, during which time the blood count increased from 3,200,000 red blood cells, with 64 per cent hemoglobin, to 4,700,000 red blood cells with 92 per cent hemoglobin. The immediate result was good but there was a return of moderate symptoms one year after returning home. He resumed treatment in Porto Rico, with benefit. No blood data on the relapse were available. The patient has now been well for three years.

Case 6.—Mrs. C. S. J., from New Orleans, presented symptoms that indicated sprue. The only time she had been out of the United States was while on a cruise to the West Indies, three years before the symptoms began. The symptoms were sore and red tongue with aphthous ulcers, morning diarrhea, loss of weight and strength, sallow complexion and anemia of nine months' standing. The characteristic stools were positive for *Monilia psilosis* and *Streptococcus pyogenes.* Active treatment was administered for three months; no biologic treatment was given, but climatic treatment was given for three months. On examination the blood count showed 2,250,000 red blood cells with 52 per cent hemoglobin and rose to 4,300,000 red blood cells with 84 per cent hemoglobin. The patient made a complete recovery.

Case 7.—St. J. M. C., a man, from San Domingo, Hayti, had symptoms of morning diarrhea, loss of weight from 171 to 87 pounds (78 to 39.5 Kg.), anemia, sore tongue and progressive weakness for five years. Several types of dietetic and medicinal treatments had been employed without avail. The patient had had blood transfusions and hundreds of hypodermic iron injections. On two occasions intravenous injections of arsphenamine were given, and after each he became markedly worse in a symptomatic way. This was probably due to the fact that arsenic is contraindicated in sprue. The patient was near death. Dieting and lavaging could not be carried out to any extent on account of steadily present nausea and vomiting, and such as was possible was of no avail. The patient died three weeks after returning home.

Case 8.—Mrs. J. A. P., wife of a physician in Havana, had symptoms of loss of weight, anemia, more or less steady diarrhea and sallow complexion, persisting for two years. On examination the stools were found to be characteristic of sprue and positive for *Eberthella paradysenteriae. Monilia psilosis* was present on and off. Active treatment was given for three months, biologic for ten weeks; no climatic treatment was given. The blood count rose from 3,200,000 red blood cells with 70 per cent hemoglobin to 4,400,000 red blood cells with 79 per cent hemoglobin. The patient had a relapse one year later but the symptoms were quickly controlled by short dietetic and lavage treatments. She is now well after two years.

Case 9.—Miss A. T. M., from Georgetown, British Guiana, presented symptoms of indigestion, sour eructations, rather steady diarrhea, loss of weight and strength, insomnia, headaches, and multiple neuritis, which had been present intermittently for two years. The characteristic stools were positive for a yeast that could not be identified as *Monilia psilosis,* and positive also for *Trichomonas,* biflagellates (*Cercomonas*), and *Pasteurella trevisan.* Active treatment was administered for fifteen weeks, biologic treatment for three months; no climatic treatment was given. The blood count rose from 3,400,000 red blood cells with 62 per cent hemoglobin to 4,500,000 red blood cells with 79 per cent hemoglobin. The last count was sustained. The patient made a complete recovery.

Case 10.—Mrs. J. A., from Para, Brazil, had symptoms of morning diarrhea, loss of weight, anemia, intestinal flatus, occasional blood in the sputum and the urine, purpuric spots and a few aphthous ulcers at times. These symptoms occurred in two periods, the first nine years previous, which cleared up on a diet of milk and fresh fruit in three months; after an interval of six years, the symptoms recurred and were steadily present for two years and nine months. The stools were moderately characteristic of sprue, *Monilia psilosis* was present, also a few unidentified ova; the culture was positive for *Clostridium alcaligenes.* Active treatment was given for seven weeks; biologic for four months; no climatic treatment was attempted. The blood count increased from 3,100,000 red blood cells with 47 per cent hemoglobin to 4,700,000, with 81 per cent hemoglobin. The last count was sustained. The patient's recovery was complete.

COMMENT

Differing from true pernicious anemia, in which relative recovery up to 4,000,000 erythrocytes on liver diets occurs in as many as 70 per cent of the cases, and improvement to this figure and then a drop again in 20 per cent, all but one of our cases showed marked improvement in erythrocyte counts and hemoglobin in a short time. Differing from the result in pernicious anemia, too, improvement was sustained on a lower intake of liver, and for long periods of time. It is probable that whatever causes sprue produces the same disturbance in the hematopoietic system as takes place in true pernicious anemia, and that while there may be differences clinically, none can be discerned, even though in pernicious anemia the stomach may show atrophy and the intestine but little or none, while in sprue the main atrophy is in the small intestine. In view of the improvement of the blood on a high liver diet in sprue, it is strongly suggested that the diet acts in a reconstructing and combative way. At least as the blood picture improves, weight, strength and appearance improve with it, as do also the diarrhea and mouth symptoms. It was interesting to note that the well known eosinophilia often produced in about four weeks on liver diet in pernicious anemia may run as high as 70 per cent in these cases of sprue. In this connection, of course, the common presence of intestinal parasites must be taken into consideration.

In the treatments used it was impossible to value the benefits due to the transduodenal lavages. All that we can report is that apparently the digestive symptoms are controlled more quickly with them than without them, this being distinctive in the morning diarrhea, the gastric symptoms, and the clearing up of the intestinal parasites, ova especially.[11] As has been suggested, care must be taken not to be too vigorous with transduodenal lavages in the much reduced case. After the active treatments, a sojourn in colder climates seems to have a substantial effect on recovery, this being important since all but one of these patients had to return to their homes in the warm countries. Sprue commonly robs the intestinal canal of the restrictive *Escherichia* types of organisms, and permits infections by pathogenic organisms to occur or continue there. Since many of these organisms are capable of producing pathologic changes in the intestinal mucosa, an interest in this factor of the disease is also necessary. The cases should be kept under observation until full recovery of the mucous membranes has taken place, the stools contain sufficient bile and are formed, weight is gained, the anemia has improved, and the symptoms have cleared and remained so for at least six months. In the reconstruction, rest, sunshine and fresh air are of value.

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[11] Bassler, Anthony: Diseases of the Intestine and Lower Alimentary Tract, ed. 3, Philadelphia, F. A. Davis Company, 1920, chapter XVII.

CONCLUSIONS

The etiology of sprue is still doubtful. There is reason to believe that more important than *Monilia psilosis* are states of dysfunction in the small intestine and stomach which cause hematopoietic changes. In these cases chronic bowel infections and climatic factors are important.

The diagnosis of sprue is largely still a clinical matter, but care must be taken to eliminate and evaluate all other causes of disorder before the diagnosis is made.

Excepting in definite cases, on account of fears of the disease, care should be taken not to mention any terms in which the word "sprue" is used, and such terms as "beginning sprue," "near sprue" and "atypical sprue" should be discontinued.

All of our cases presented an anemia of the megaloblastic type, the type that responds most pronouncedly to liver therapy. Up to the present we have seen no instances of what we believed to be sprue without considerable anemia, although nonanemic cases have been reported, and even fatal ones. At the present time it is our belief that sprue without some anemia may be an instance of mistake in diagnosis of sprue.

Although the low carbohydrate diet has been of distinct service, the additions of liver and vitamins enhance its value. Blood transfusions in our experience have been disappointing.

In treatment, the best plan is the combined one of high liver diet with fruits, vegetables and milk product additions, transduodenal lavages, biologic intestinal treatments, and residence in colder climates.

Similarity of the response of the sprue cases on this type of dieting to that of pernicious anemia is noticeable, excepting that the proportion of success is higher and the results more substantial than in pernicious anemia.

In ten cases of sprue here reported, results from treatment were successful in all but a lethal case, one too far advanced for carrying out treatment or expecting a response.

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ABSTRACT OF DISCUSSION

Dr. Damaso de Rivas, Philadelphia: The specific cause of sprue still remains in the domain of theoretical speculation. The question naturally arises whether this disease is but a final symptomatic manifestation of secondary complications of one or several of the well known disorders of the intestine. Careful examination often shows the presence of some parasitic or other diseases of the intestine or internal organs, the timely and proper treatment of which is commonly followed by recovery. I have been surprised to find that sprue is rather a less common disease than is generally believed. The question naturally arises as to the rôle the parasites may have had in the pathology and symptomatology of the disease. Not uncommonly, however, in spite of the most careful study of the case, no definite biologic causes, organic or metabolic disturbances, can directly or indirectly be traced as responsible for the manifestation of the symptoms of sprue. A case that came under my observation clearly elucidated the fact that a definite diagnosis of sprue should not be made without *a priori* taking into consideration the history of the case, the biologic factors and the organic and metabolic disturbances that may give rise to the symptoms common to sprue. A man, aged 55, presented most of the common symptoms of sprue. The diagnosis of sprue was made by several specialists and he was treated accordingly, but without improvement. Three years before he came to Philadelphia he had a gastro-enterostomy for suspected gastric ulcer. After the operation he gradually became weak, anemic and emaciated, in spite of a good appetite, accompanied by marked gastro-intestinal disturbances. A careful examination failed to show any pathogenic bacteria or fungi, or protozoan or metazoan organisms in the intestine. The patient was placed on a regulated diet. He received several intravenous injections of iron and arsenic, blood transfusion, and transduodenal and colonic lavage without improvement, and he died in four weeks. The autopsy revealed a most unexpected and interesting condition. The fundus of the stomach was communicated to the transverse colon; in other words, the surgeon had performed a gastrocolostomy instead of a gastro-enterostomy, which explains the subsequent impairment of nutrition, gastro-intestinal disturbances, anemia, and other symptoms simulating sprue.

Dr. Seale Harris, Birmingham, Ala.: Sprue is unquestionably found not infrequently in the southern section of the United States. It has been found also in England and Germany, in patients who have never left those countries. There are a great many improper diagnoses of sprue. I have seen cases in which the symptoms ordinarily would have been called those of sprue, if one had not known there were other factors in the case. The best work on sprue has been done by Bailey K. Ashford of Porto Rico. He has had a larger experience with the disease than any one else. Yet, at the same time I am not convinced that *Monilia psilosis* is the sole etiologic factor in sprue. Wood of Wilmington, N. C., some years ago did an excellent piece of work in studying pernicious anemia, sprue and pellagra, and he came to the conclusion that *Monilia psilosis* might be the cause of all of them. He isolated *Monilia psilosis* in a number of cases of true pernicious anemia. I have seen cases of pernicious anemia that had exactly the same symptoms as sprue, and the same is true of pellagra, particularly the so-called pellagra sine pellagra. In sprue it is just as important to give large doses of dilute hydrochloric acid when there is achlorhydria, as in cases of pernicious anemia; and a well balanced diet is of great importance in the treatment of sprue. Then there is the question as to vitamin deficiency; in fact, many believe that sprue is a vitamin deficiency disease. A high carbohydrate vitamin deficient diet is certainly a predisposing factor in sprue. There have been many fad sprue cures in various parts of the world, for instance, the strawberry cure, giving largely strawberries, as is in vogue in India and China. In New Orleans, they have the banana cure. They give ten or fifteen bananas a day and nothing else for a few days and they claim that the sprue patients get well. I think the important thing is to regulate the diet of the patient and treat the patient as well as the symptoms. Apparently sprue is not as serious a disease as it is generally considered to be. Ashford reports less than 10 per cent of deaths in 2,500 cases. Why is sprue so prevalent in Porto Rico, why is it occasionally seen in Cuba, when in the Central American countries of the same latitude it is a rare disease? There is a lot to be learned about sprue. Liver extract will control pernicious anemia in a sprue patient just as well as the liver diet.

Dr. Jackson Blair, Cleveland: The digestive tract disturbances, the achlorhydria often present, and the anemia and leukopenia link sprue closely to pernicious anemia. It has been my experience in pernicious anemia that these patients have a chronic mild urinary tract infection that has persisted for years. I have presented a series of cases and evidence that the mechanism of the anemia and leukopenia of pernicious anemia is the chronic loss of leukocytes from the body and an exhaustion from the body of the hematopoietic substance required in erythrocyte and granulocyte formation, both processes of which occur in the bone marrow in the adult. In view of the obvious intestinal lesions of sprue and the evidence of Manson and Bahr that in the ulcers in the lower ileum and colon the mucosa in places is entirely destroyed and replaced by a structureless substance enclosing leukocytes, I present the hypothesis that some of the secondary symptoms of sprue, particularly the anemia, leukopenia and possibly other symptoms, are due to the chronic secondary infection of the intestinal tract and the resultant chronic loss of blood, particularly of granulocytes. There is little doubt that the yeasts and mycelia or *Monilia psilosis* are the primary invaders and may be directly responsible for the diarrhea and certain other symptoms, but it is probably the secondary invaders that are responsible for the greater part of the clinical picture.

Dr. Walter A. Bastedo, New York: Dr. de Rivas indicated that sprue is scarce. Perhaps it is, but this month in New York I saw my seventy-seventh case. Possibly the reason it is scarce is that it is not recognized. Sprue is not the same as pernicious anemia. In our cases and in Dr. Ashford's cases there has been gastric achylia in about 33 per cent. The large majority of even the fatal cases do not present gastric achylia. I have had three or four hundred cases of pernicious anemia. Dr. Mussey of Tulane University has called attention to the scarcity of pernicious anemia in the tropics. A lot of pernicious anemia is seen in the North but not many cases of sprue. In sprue the diarrhea and the sore tongue frequently alternate, and I have had patients who, on being put on the fruit diet when they had the diarrhea, lost the diarrhea in a few days, but then began to get sore tongue so that they could not take the fruit diet, and then diarrhea would come back. It is a most astounding clinical experience to have a severe diarrhea cease when the patient takes large quantities of fruit. Many years ago through the kindness of Dr. Simon and Sir Aldo Castellani there was a patient in our hospital from New Orleans who did not do well. But at the time we had in the hospital two children with celiac disease, which resembles sprue closely. One of the specific treatments for celiac disease is bananas, and through fresh ripe bananas, the patient improved sufficiently to return to New Orleans. I wrote the doctors about the banana idea and later they reported that she had taken eight bananas a day and had gained 40 pounds. Bananas are good and strawberries are particularly good, but almost any fruit will do. Another thing is that these cases occur in the better classes and in the cities. They are not found among the poor of the country districts. Sprue patients almost invariably take low amounts of protein. Many of them have never cared for meat and, probably because of conditions in the tropics, have never had eggs or milk to any extent. I strongly believe that the treatment should not be a fad treatment and I favor milk at the outset and later a good mixed diet with plenty of vitamins, fresh fruit and, if possible, liver. Sore tongue may require a blander diet for a time.

Dr. Frank Smithies, Chicago: Sprue is fairly common, particularly since so many Porto Ricans or Filipinos began to come here for education. I want to emphasize, too, that it is never pernicious anemia. Except as a terminal affair, I have never seen instances of sprue when there was a continuous and permanent achylia, either gastric or pancreatic. Next, the blood is entirely different. It does not run the characteristic relapses that pernicious anemia does, and, most important of all, one never gets in the urine the blood derived pigment, as one finds in cases of true pernicious anemia. The neurologic picture is largely a psychologic picture. One never finds the changes in the central nervous system, as one does in nearly 70 per cent of even early pernicious anemia. I am rather upset by Dr. Bastedo's statement that this is not a disease common among the poor people. I have traveled in tropical and subtropical countries. I have always associated sprue with poverty. The poor natives live largely on little cakes made out of meal. This food during and after cooking is constantly exposed to dust infections of all kinds, and one gets the idea that in sprue he is dealing with a disease of poverty where there is a definite food imbalance. The meal is often dirty. Similarly, when the missionaries (and those are the main group that I have seen) come to tropical climates, the heat suggests to them that they must not eat meat or fats or substances of that kind; rapidly they take up a diet similar to that of the natives, in consequence of which they get the same type of dietetic imbalance, plus tropical infections. If primarily absent, hydrochloric acid comes back nicely in these cases and the individual enjoys fair health, but I have never seen a single patient with real sprue who made a complete recovery and through the remainder of life was a perfectly healthy individual. The ailment leaves organic changes in the heart muscle, in the liver, in the pancreas, and in the muscular wall of the alimentary tract.

Dr. Walter A. Bastedo, New York: As Dr. Smithies referred to my remarks about the poor people, I want to say that that information came directly from Dr. Ashford, who has had some 2,500 cases. He particularly laid stress on the fact that the poor people of Porto Rico are not the ones that have the sprue. The same statement has been made to me by Havana physicians who see a large number of cases.

Dr. Frank Smithies, Chicago: Ashford is an eminent specialist in a larger city and the people in the poor towns do not get to him. They cannot pay his fees. The people in the bushes are taken care of by the missionary doctors with limited facilities and frequently of limited experience, as those people are very poor. I have seen some of Ashford's patients.

Dr. Max Einhorn, New York: I had some patients sent to me diagnosed by Ashford himself and here, strange to say, in one case I found just the opposite picture to the other, that is, with regard to the functions of the stomach. In one there was hyperchlorhydria and also signs of a duodenal ulcer, and in the other achylia, and they were relatives. The two came at the same time and both were sent by Ashford. I treated them on general principles and both were benefited. My impression is that sprue as such, and I have seen a great many of these cases (I have not seen the poor people because they do not come here from Porto Rico and Santo Domingo) is a deficiency disease. There are some things missing. In regard to the pancreatic difficulty, which has been assumed to exist in a great many people, they show also hyperchlorhydria, and in several patients I have found that there is not only a normal function of the pancreas but hyperactivity. I have measured the amount of pancreatic secretion through the duodenal tube, and in one case it was combined with diarrhea. I thought I could ascribe the diarrhea to the irritation through too high activity of the pancreas and that by giving atropine and things contrary to the other things we would achieve improvement.

Dr. Anthony Bassler, New York: I agree with Dr. Einhorn that the deficiency factor is of great importance in the control of the symptoms. Any one who has done some autopsies in cases of pernicious anemia and cases of sprue would be struck with the differences that exist between these two conditions. While there may be a similarity in the blood, that is the only similarity that exists, and even in that, in pernicious anemia, there are certain types of blood pictures never seen in sprue, and I agree perfectly with Dr. Bastedo and with Dr. Smithies that there is a difference in these two conditions. The diet is essentially a fruit-carbohydrate diet. It comprises all that has been best so far in the handling of sprue from various quarters of the globe, and to this is added the high liver content and the use of bone marrow. I have seen a case in which there was a hyaline degeneration both of the islands and of the acinous portion of the pancreas and with that an almost total atrophy of the mucosa of the stomach and the mucous membrane of the small intestine almost to the valve, the mucosa of the intestine being practically blanched white. There is one thought I want to express that was not reported in the series here. I have had twenty-seven patients from various parts of the Southern countries, in whom a diagnosis of sprue had been made, some of them without any diarrhea, some with only a simple anemia, some who never had a sore tongue, others in whom the progressive weakness did not appear and yet a definite diagnosis of sprue had been made. I might add to what Dr. Einhorn has said that some of those patients had been at the School of Tropical Medicine in Porto Rico. As Dr. Smithies suggested, the psychologic side of the patient should be considered when the term sprue is used, because the people down there are fearful of it. I think it is most unfair, if other causes for the diarrhea or the other conditions that may simulate sprue clinically are the cause of the condition in the patient, to use the term "sprue."

PROGRESS IN THE ROENTGENOLOGIC DIAGNOSIS OF DIAPHRAGMATIC HERNIA *

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A vast and growing literature on diaphragmatic hernia, larger than the incidence of the condition would seem to warrant, attests a keen interest in this condition. Once rated as extremely rare, it is now considered more often among diagnostic alternatives because of the publicity it has received and the increasing frequency with which these hernias are being discovered. For example, as late as 1924 it was estimated that in all not more than 1,200 cases had been recorded, but these consisted chiefly of gross and easily demonstrable hernias, and since that time, besides numerous single case reports, several extensive series comprising less obvious cases have been added. When this estimate was made, only twenty cases had been listed at the Mayo Clinic, but during the last six years ninety additional cases have been observed in this clinic alone. It is evident, therefore, that diaphragmatic hernia is not merely a pathologic oddity but a lesion which should be taken into practical account and given higher rank among the possibilities to be canvassed at examination.

Continuing to recognize the traditional division into the congenital and the acquired varieties, recent publications emphasize the congenital factor, whereas in earlier days the acquired form, principally that resulting from violent crushing injury, was stressed. Modern case reports appear to indicate that whereas an increase of intra-abdominal pressure, which need not be extreme, is often doubtless the immediate cause of hernia, congenital gaping of the hiatus oesophageus or other anatomic foramina, or developmental weakness in other portions of the diaphragm, is usually a significant predisposing element. In short, a closer similarity between diaphragmatic hernia and inguinal hernia is becoming apparent. Thus the opinion of Jenkinson [1] that the hiatus hernia, which is often slight, is the most frequently encountered type and is relatively common, finds confirmation in the observations of Åkerlund,[2] Ude and Rigler,[3] Morrison [4] and Healy.[5] An interesting variety of this type is that in which the esophagus is congenitally shortened. However, when the entire stomach lies above a normally developed diaphragm, LeWald,[6] following Bailey, prefers the designation "thoracic stomach" and classifies it apart from the hernias. Besides greatly swelling the records of hiatus hernias, case reports over the last five years deal with traumatic hernias through breaches in various parts of the diaphragm, parasternal and other hernias, congenital or acquired, all differing in details but fundamentally alike in their diagnostic problems. The aggregate of new reports tends to confirm the accepted fact that the stomach is most frequently implicated in the hernia and is followed by the colon, small bowel, omentum, spleen, pancreas and liver, singly or in varying combinations.

To the clinical side, little new has been added. Except in the typical traumatic cases with a history of wounding by knife or by gunshot, or of crushing injury or violent forward flexion of the body, a clinical diagnosis or even surmise of diaphragmatic hernia is scarcely to be expected. The symptoms may be chiefly gastric or thoracic, or both, and vary widely in character and intensity; although physical signs may be pronounced, they are most often odd and perplexing. With the facile means of examination afforded by the roentgen ray, there is little incentive for assiduous clinical study of the condition. Of 690 cases reviewed by Giffin [7] up to 1912, only fifteen had been diagnosed clinically. Of all cases now on record, the vast majority were revealed by the roentgen ray. Obviously, then, the roentgenologist has a virtually clear field and a proportionate responsibility for this diagnosis. Since so many of the 110 cases seen at the Mayo Clinic have previously been reported from the clinical, surgical or roentgenologic standpoint by Harrington,[8] Beckman,[9] Carman and Fineman,[10] Balfour,[11] and Fineman and Conner,[12] a statistical analysis of the entire series would be repetitive and tedious. It will perhaps be more profitable to review the subject from the roentgenologic angle in the light of a broadened general experience and of our own observations.

As in many other diseases, the chief obstacle to the diagnosis of diaphragmatic hernia is neglect to look for it; and, since all examinations are ordinarily made at the direction of the clinician, he must share blame with the roentgenologist for many failures of diagnosis. We are here concerned, however, not with the particular signs or symptoms, if any, which should direct the clinician's attention to the possible presence of a hernia, but with the roentgenologist's opportunities and duties. Such opportunities he may find in each of three separate examinations which he is constantly making; namely, those of the thorax, stomach and colon.

Theoretically the diagnosis should offer no great difficulty, since it depends essentially on the demonstration of abdominal organs above the diaphragm and in the thorax, where roentgenologic changes are readily apparent. Nevertheless, the differential diagnosis is often hard, even when the hernia and its manifestations are pronounced, and many hernias, especially those which are small, are reduced by the standing position

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* From the Section on Roentgenology, the Mayo Clinic.

* Read before the Section on Radiology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

[1] Jenkinson, E. L.: Lesions of the Diaphragm, Am. J. Roentgenol. **14**: 16-19 (July) 1925.

[2] Åkerlund, Åke: Hernia diaphragmatica hiatus oesophagei vom anatomischen und röntgenologischen gesichtspunkt, Acta Radiol. **6**: 1-22, 1926.

[3] Ude, W. H., and Rigler, L. G.: Hernia of the Diaphragm Through the Esophageal Hiatus with Report of Nineteen Cases, Minnesota Med. **12**: 751-758 (Dec.) 1929.

[4] Morrison, L. B.: Diaphragmatic Hernia of Fundus of Stomach Through the Esophageal Hiatus, J. A. M. A. **84**: 161-163 (Jan. 17) 1925.

[5] Healy, T. R.: Symptoms Observed in Fifty-Three Cases of Nontraumatic Diaphragmatic Hernia, Am. J. Roentgenol. **13**: 266-271 (Jan.) 1925.

[6] LeWald, L. T.: Thoracic Stomach: Differentiation from Eventration and Hernia of the Diaphragm, Radiology **3**: 91-102 (Aug.) 1924.

[7] Giffin, H. Z.: The Diagnosis of Diaphragmatic Hernia, Ann. Surg. **55**: 388-397 (Jan.) 1912.

[8] Harrington, S. W.: Diaphragmatic Hernia, Arch. Surg. **16**: 386-415 (Jan.) 1928.

[9] Beckman, E. H.: Diaphragmatic Hernia, with Report of Three Cases, Surg. Gynec. Obst. [illegible] 9.

[10] Carman, R. D., and [illegible] Roentgenologic Diagnosis of Diaphragmatic [illegible] of Seventeen Cases, Radiology **3**: 26-45 (July) 1924.

[11] Balfour, D. C.: Nonstrangulated Diaphragmatic Hernia Due to Indirect Injury, Ann. Surg. **63**: 78-82 (Jan.) 1916.

[12] Fineman, Solomon; and Conner, H. M.: Right Diaphragmatic Hernia of the Short Esophagus Type, Am. J. M. Sc. **167**: 672-679 (May) 1924.

commonly employed for the inspection of the stomach and thorax. Consequently, the examiner is often obliged not only to consider all details with extraordinary care, but also to resort to special technics.

Patients with diaphragmatic hernia are frequently sent first for roentgenography of the thorax, because this is almost a standard feature of routine examinations and because it may be called for by the thoracic symptoms. Unless the hernia is extremely small or is reduced spontaneously at the moment, thoracic changes will be evident in the roentgenogram. Obviously the roentgenographic manifestations will vary with the site and extent of the hernia, the organs intruded into the thorax, and, if the stomach and bowel are implicated, their contents, whether gas, fluids or solids. In classic instances when the hernia is gross and includes the stomach or colon the roentgenogram alone may be diagnostic if the gas-bubble of the stomach or the transradiant haustra of the colon can be identified and their supradiaphragmatic situation is evident. Not always, however, is even a marked herniation of the stomach recognizable, for the dome of the cardia may reach from the midline to the thoracic wall and be confounded with an elevated diaphragm. Further, as Carman and Fineman have pointed out, a partial hernia of the stomach filled with gas and fluid may closely imitate hydropneumothorax or an echinococcus cyst, loops of gas-filled bowel may resemble bronchiectatic cavities, and other hernias may be mistaken for subdiaphragmatic abscess, multiple abscesses of the lung, or pleuritis with or without effusion. It is difficult to realize the striking similarity of these and other pleural, pulmonary or mediastinal lesions to hernia unless the films are placed side by side. The conclusion is inescapable that in studying roentgenograms of the thorax, no matter what the purpose of the examination or the tentative clinical opinion, diaphragmatic hernia must be kept constantly in mind, and in all doubtful cases examination of the alimentary tract with opaque mediums is to be advised.

It is to be assumed that in all examinations of the stomach the esophagus also will be inspected, since peculiarities in the passage of the barium stream through the esophagus often betray the presence of a hernia. The behavior of the stream varies with the type of hernia. In the variety with a short esophagus the shortening is evident and the barium enters without hindrance into the stomach, the rugae of which distinguish it from esophageal dilatation or diverticulum. In persisting para-esophageal hernia the barium descends through a more or less tortuous lower segment of the esophagus, in which it is inclined to tarry, and then rises to enter the herniated portion of the stomach. Herniation of the stomach through breaches elsewhere than at the hiatus is almost invariably attended with a notable delay of the barium in the lower part of the esophagus, the epicardial portion of which is tensed and often sharply angulated at the hiatus. Logically, then, any deviation in the terminal course of the esophagus or retarded entrance of the barium into the stomach, although often due to other causes, should at least suggest the thought of hernia.

Distortion of the stomach in hernia of any type is variable in degree and configuration. Rarely, as in congenital absence of the left diaphragmatic arch or in gross traumatic hernia, little distortion occurs. Most often, however, the stomach is only partially herniated, and hour-glass deformity results rather constantly. Since the fundamental distinguishing mark of hernia is the supradiaphragmatic situation of abdominal organs it is necessary, although sometimes difficult, to trace the outline of the arches. Often the arch is irregular, or sinuous, or angulated at the point of rupture, or the margins of the breach may form a visible collar. Respiratory movements of the arch may be normal, diminished, absent or reversed, depending on the size of the hernia and the extent of fixation by adhesions. Completing the picture are displacement of the heart, if the hernia is large, and shading of the lung in proportion to the amount of compression.

To elicit these manifestations and study them satisfactorily, the ordinary technic is often inadequate and must be supplemented by special methods. Contours of the arches should be traced at all practicable angles, and many observers dwell on the advantages of the lateral view. By causing the patient while in the standing position to inspire deeply, or bend forward, or by strong manual pressure over the abdomen, a spontaneously reduced hernia can sometimes be made to reappear. Often by these maneuvers a small hernia of the stomach, especially one at the hiatus, is not depicted by the barium but by air forced out from the gas-bubble.

From the earliest employment of the roentgen ray for the exhibition of diaphragmatic hernia the recumbent position, prone, supine, lateral or Trendelenburg, has been recommended to demonstrate hernias which might spontaneously have been reduced in the erect posture. At the Mayo Clinic we have often had recourse to the prone position, and this posture together with manual pressure on the abdomen has revealed hernias which had not been demonstrable otherwise. Until of late, however, most examiners have employed recumbent positions only in cases in which there was a strong suspicion that a hernia existed despite negative observations in the erect posture. Jenkinson, Åkerlund and others have rendered outstanding service in this field, not only by proving the relative frequency of small, reducible, hiatus hernias, but also by reemphasizing the necessity of employing recumbent positions to discover them. By way of corroboration, it may be mentioned that in a selected group of thirty-two patients sent recently for examination of the stomach, the results of which were negative in the standing posture, two were found to have a definite hernia through the hiatus when examined in the prone position. In this group a special search for hernia was stimulated by the fact that several of the patients had symptoms compatible with hernia, in several the lower end of the esophagus deviated to the right in a manner suggestive of displacement by hernia, and all the patients were of the broad habitus. On the other hand, in a consecutive series of 300 patients, only one patient was similarly discovered to have a hernia through the hiatus.

It would seem that no roentgenologic examination of the stomach is decisive unless both the erect and the recumbent posture are employed and a careful search is made for evidence of diaphragmatic hernia. On the other hand, excessive zeal in this direction might lead to substantial error, for exact knowledge is lacking as to the clinical significance of certain small hiatus hernias, some of which might be regarded as potential rather than actual. It is probable that the size of the esophageal hiatus varies considerably among normal and comparable persons, and that the tone of the diaphragmatic muscle fibers which enclose it is a modifying factor. In a small series of patients operated on at the Mayo Clinic for conditions other than hernia, the surgeon explored the hiatus and found that in several it would accommodate three fingers, yet at subsequent roentgenologic examination no evidence of hernia could be elicited. Cardio-esophageal relaxation, characterized by dilatation of the epicardia and ready reflux of barium into the esophagus, as reported by Robins and Jankelson[13] in more than 100 cases and which we have observed repeatedly, might be confounded with hernia by an overkeen examiner.

Diaphragmatic hernia cannot absolutely be excluded without examination of the colon with the barium enema, and this is frequently necessary to confirm or exclude participation of the colon in known cases of hernia. Rarely, the small bowel alone is implicated, and serial observations of the opaque meal may be advantageous or necessary in establishing the diagnosis.

Hernias through the right arch of the diaphragm are in the minority, the ratio to left side hernias being variously estimated. Usually a portion of the right lobe of the liver protrudes through the breach, and the prominence is conspicuous against the lung field, but it may be mistaken for an hepatic tumor. Occasionally the colon alone or in conjunction with other organs is extruded through the right leaf. Right hernias of the colon may require distinction from the rare instances in which the hepatic ligaments are lax and the transverse colon overlies the liver. In this connection also it is noteworthy that hernias through the esophageal hiatus may intrude into either the right or the left half of the thorax. On the whole, whatever their portal of entry, hernias into the right thoracic space are likely to be more perplexing than those on the left.

A closer approach to accuracy in the differential diagnosis of diaphragmatic hernia is no doubt accountable in part for the increasing number of case reports. It is probable that in the past small hernias of the stomach, through the hiatus, have frequently been mistaken for esophageal diverticula, although the latter should be distinguishable by the absence of rugae. Eventration is perhaps the most deceptive simulant of hernia. Reversed, or paradoxic, respiratory movement of the affected arch was for a time regarded as a distinguishing sign, but recent observers agree that respiratory movement may be normal, diminished, absent or reversed in either hernia or eventration. A more practical point of distinction, advanced by Morison,[14] is that in eventration the upper level of the barium in the stomach always coincides with the esophageal opening when the patient is erect, whereas in hernia the upper level of the gastric content is likely to be above the plane of the esophageal aperture. Further, in elevation the line of the arch, which can be seen to advantage in the lateral view, is regular and unbroken, and no shadows of abdominal viscera lie above it. Hour-glass deformity of the stomach caused by hernia resembles that produced by gastric ulcer or cancer, and an ulcer with a visible niche may occur at the hernial constriction, but the distinctive feature of hernia is the supradiaphragmatic situation of the upper loculus.

SUMMARY

The present status of the roentgenologic diagnosis of diaphragmatic hernia may be summed up as follows:

1. The incidence of the condition is higher than it has been assumed, and hernias at the esophageal hiatus are relatively common.
2. Hernia should always be considered in examinations of the thorax and especially when anomalous shadows are seen in the lower thoracic fields.
3. In examining the stomach, hernia cannot be excluded without the employment of recumbent postures and manual pressure over the abdomen.
4. It cannot be excluded without examination of the large bowel, for the colon alone may be implicated.
5. Its distinction from other lesions depends on the demonstration and identification of abdominal viscera above the diaphragm; neither normal nor altered respiratory movements of the diaphragm are reliable as differential criteria.
6. The clinical significance of small, impermanent hernias at the hiatus which are demonstrable only under more or less artificial conditions has not been fully determined.

ABSTRACT OF DISCUSSION

Dr. E. L. Jenkinson, Chicago: Lesions of the diaphragm are interesting. At times they are difficult to identify. In a great many instances probably these small hernias are of no importance, because they cause no symptoms, and in these instances the patients are not treated. Five years ago I saw a small hernia of the diaphragm through the esophageal opening. The patient would not subject herself to surgery and she would not take medical treatment. She kept eating large meals and would go to bed immediately after she had eaten. Five years later, the sac was large, about the size of an orange. If these patients are not operated on or if they do not follow the medical regimen and are not careful in the amount of food they eat or if they take large amounts of fluid and retire immediately, I think that the sacs get larger and, later, cause symptoms. I do not think that the classification of these lesions is of importance. Whether they are eviscerations due to injury or whether they are congenital, they generally cause the same symptoms. I think that most congenital hernias have a sac, whereas eviscerations or traumatic hernias do not have a sac; they have, as a rule, a covering of the hollow viscus over them. I don't believe that paradoxic movements of the diaphragm occur in the smaller hernias. They do occur occasionally in large hernias through the central tendon. Occasionally, one may get a paradoxic movement at one examination, and at a second examination the movements may be normal. I don't believe that a short esophagus has been encountered very often, even in large hernias. The esophagus, as a rule, is of normal length. I think that some of the instances of short esophagus reported are due to the fact that these hernias which occur through the esophageal opening have a high diaphragm; the stomach rotates and the sac goes up alongside the esophagus. As a rule, with the large hernias, the esophagus can be traced around the sac. Hernias are important regarding diagnosis with especial reference to hydropneumothorax. Recently I saw a patient who had had a rib resection. The child's stomach was up in the chest. It is important that these patients be examined carefully, and especially is this true in children. It has been my experience that large hernias, when most of the stomach and a large part of the small and large bowel are in the chest, usually occur in children. Whereas, in patients who develop them or have symptoms in adult life, the hernias are usually small.

Dr. L. T. Le Wald, New York: One point that was mentioned and should never be lost sight of is that in any peculiar appearance about the diaphragmatic region one should never make a positive diagnosis without roentgen examination with opaque material in the digestive tract. A case occurred in my service at one of the hospitals in which an assistant made a diagnosis of thoracic tumor on the right side. There was a projecting shadow above the diaphragm but no barium study was made. The next thing I knew was that an exploration had been done by a thoracic surgeon, who found an omental hernia protruding through the diaphragm. There had been no gas or anything to give a clue to the fact that the shadow in the chest was due to a hernia. It had quite a smooth border and it had been diagnosed as an intrathoracic tumor or cyst and I have no doubt that if one had given barium one would have seen some displacement of the colon or stomach enough to give a clue to the fact that it might have been an omental hernia. The patient died of pneumonia following the operation. Thoracic stomach ought to be classified under the general heading of hernia, but with this distinction, that this type should never be operated on with the idea that the stomach can be brought down into the abdominal cavity, because it cannot be done on account of the short esophagus. Unless one is going to do some peculiar type of plastic operation to elongate the esophagus, no operation should be attempted. Some cases of eventration deserve operative intervention. In two patients, eventration had come on after removal or resection of the phrenic nerve to collapse the left side of the chest for tuberculosis. The other type of case that I want to stress is the complete absence of one half of the diaphragm. If one reads the reports of some of these cases, one will see that it is impossible at the present time to get sufficient tissue to repair a defect as large as this. If one could be sure that one had a defect as large as this, one probably would feel like discouraging any operative attempt to repair it, but might operate for some complication. The contents in my case were the stomach and the colon together with the cecum and a good deal of the small intestine. Dr. Sante just told me about a case in which an ulcer perforated into a herniated stomach. I heard of a case of diaphragmatic hernia in which an appendix ruptured into the chest cavity.

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[13] Robins, S. A., and Jankelson, I. R.: Cardio-Esophageal Relaxation, J. A. M. A. 87: 1961-1964 (Dec. 11) 1926.

[14] Morison, J. M. W.: Elevation of the Diaphragm: Unilateral Phrenic Paralysis, Arch. Radiol. & Electroth. 27: 353-364 (May), 28: 72-83 (Aug.), 111-123 (Sept.) 1923.

Dr. William A. Evans, Detroit: A greater incidence of diaphragmatic hernia may now be expected, owing to the increasing popularity of phrenic nerve operations for tuberculosis and other thoracic conditions. The proponents of this surgical procedure deny that this will happen, but in statistics recently compiled by a German surgeon, one case of true diaphragmatic hernia occurred in a group of thirty-five patients who had been operated on. If this ratio prevails in Detroit, where one surgeon alone has paralyzed the diaphragm in more than 800 patients, it is obvious that the frequency of this condition will be greatly increased.

Dr. B. R. Kirklin, Rochester, Minn.: We did not discuss the thoracic stomach because we felt that it should not be included in a paper on diaphragmatic hernia. So far as I know, no attempt has been made at the Mayo Clinic to repair the diaphragm in cases of eventration. One thing that I wish to stress is the extreme difficulty of demonstrating some of these hernias. As an example, I recall the case of a truck driver who was injured in an automobile wreck. This man was examined in Minneapolis by a competent roentgenologist who found about two thirds of the stomach and part of the colon extruded through a rent in the diaphragm and accordingly returned a diagnosis of hernia. The patient came to the Mayo Clinic and was sent to the roentgenologic section for examination. Although aware of the diagnosis that had been made, and although films of the chest indicated that the diaphragm had suffered injury, neither Dr. Moore nor myself was ever able at repeated examinations to exhibit the hernia with the barium meal or to demonstrate any abdominal viscera above the diaphragm. The patient was operated on and the hernia successfully reduced.

Habit Clinics.—Habit clinics have some points in common with the "rest cures" to which wealthy women go. They are places where children go to recover from the abnormal home conditions. The effort of those in charge of the clinic is directed toward changing the beginning pathological habits into which the children have fallen. After a period of treatment, they are returned to their homes, where the same conditions again renew the habits that sent them to the clinic. While children are attending these "mental sanitariums" their parents should also undergo a course of habit treatment. In some way the vicious circle ought to be broken. The circle, which begins with the lack of knowledge of the neurasthenic mother, continues in the disturbed mental poise of the child and follows the same old course in the home, never deviating from the vicious path of parental irritation, nervous response and repeated irritability alternating with sentimental indulgence of the child.—Swift, E. J.: The Psychology of Childhood, New York, D. Appleton & Co., 1930.

THE ORIGIN OF POLYPI OF THE LARGE BOWEL

WITH ESPECIAL REFERENCE TO ADENOMA: PRELIMINARY REPORT *

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Polypi may occur in almost any portion of the intestinal tract, but approximately 75 per cent of these occur in the large bowel. Broadly speaking, any pedunculated tumor extending into the lumen of the bowel may be termed a polypus. This broad usage of the term has brought about considerable confusion. Of the more unusual type may be mentioned fibromas, lipomas and myxomas arising from the areolar tissue of the bowel wall; myoma arising from the muscular coats, and hemangioma arising from the blood vessels. Certain other tumors arise outside the bowel wall but protrude into the lumen of the intestine in a polypoid fashion. Among these may be mentioned postsacral dermoid cysts and meningocele. Occasionally there is a polypoid growth due to parasites such as *Oxyuris vermicularis* or *Schistosoma hematobium.* This group does not compose more than 5 per cent of all polypoid tumors of the large bowel. Their origin is obvious and they will not be discussed further.

The second group has to deal with the epithelium of the large bowel. Of this group there are two divisions. The first, or inflammatory, type is seen in cases of ulceration of the bowel due to ulcerative colitis, amebic dysentery, syphilis, tuberculosis and other inflammatory conditions. Polypoid flaps or tags extend into the bowel. The mucosa is thickened, edematous and inflamed, but with the disappearance of the ulceration these polypoid flaps also disappear. These are in no sense true tumors, as there is no growth of the epithelial tissue.

The second type is the adenoma or adenomatous polypus, and it is with this group that this paper is chiefly concerned. These tumors are true adenomas, whose epithelial structure is derived from the cells of the intestinal mucosa. They protrude into the bowel lumen and eventually become polypoid through the traction of their own weight, the pulling of the fecal current and the peristaltic action of the bowel itself. Erdmann and Morris [1] have given a classification which is widely quoted. They divide the tumors into the adolescent (congenital disseminated) type, which they have seen in the first two decades of life, and the adult or acquired type, which appears in later life. I have never been able to match this classification with my own experience. As a matter of fact, children usually have a single adenomatous polypus. I have never seen a child under 10 years of age with more than two adenomatous polypi, and I have never seen a case in which the bowel was studded with numerous adenomatous polypi in a patient who was under 18 years of age. In fact, I have come to regard the type of case in which numerous adenomas are present as a condition occurring in adult life, in what may be termed the "precancer years," that is, the late twenties or early thirties or later. No doubt there are exceptions, but as a rule I believe that single adenomas occur in the earlier years of life and multiple adenomas in the later years.

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* Read before the Section on Gastro-Enterology and Proctology at the *Eighty-First Annual Session of the American Medical Association,* Detroit, June 25, 1930.

[1] Erdmann, J. F., and Morris, J. H.: Polyposis of the Colon, Surg. Gynec. Obst. **40:** 469 (April) 1925.

A typical adenomatous polypus may be described as consisting of a stalk or pedicle, which may be short and thick or long and thin. This depends on the duration of growth, blood supply and certain extraneous factors, as bowel peristalsis and fecal current. The stalk is covered with one layer of mucosa such as lines the intestine. If the adenoma becomes cancerous the cancer cells often invade the pedicle. The central portion of the stalk is made up of connective tissue continuous with that of the bowel wall. It also contains blood vessels and nerves. On reaching the body of the adenoma the stalk appears somewhat compressed and then its component structures branch out to form the framework of the tumor. The tumor itself is usually round or oval and of a darker red than the normal mucosa. It is lobulated after the manner of a cauliflower. The surface appears velvety and bleeds easily to touch. The epithelial covering shows cells with more mucus than normal, and often more than one layer in thickness.

This is a typical adenomatous polypus, but it is not always the picture seen through the proctoscope. Trauma, inadequate blood supply and infection frequently produce superficial ulceration. In time, this results in fibrosis with the end-results that the tumor appears as the smooth, hard whitish type of polypus in which little adenomatous structure is left.

How do these tumors originate? What factors influence their growth? Why do some degenerate into carcinoma and some not?

As to why these tumors form, let us first consider the question of special susceptibility or tendency of an individual to form adenomas. I think that it is fairly obvious that some such tendency does exist. This may be simply a question of a certain type of mucous membrane or some deeper inherent characteristic, influencing tumor growth, which the present knowledge of body chemistry, pathology and bacteriology has not been able to determine. At least it is known that in some cases a definite family tendency can be shown. Jüngling[2] traced this characteristic through three generations of several different families. Of course, usually a single individual in a family is affected. Owing to the fact that propagation of the human race is done in such a haphazard manner and ancestral diseases are so little known to the average individual, this apparent isolated appearance of the multiple adenomas proves little if anything, as far as inherited tendency is concerned. This single case may appear in an apparently nonadenomatous family, just as an occasional white mouse may appear in what is apparently a pure strain of gray mice. If the strain is checked back, usually a white mouse can be found among the ancestors.

Aside from the question of predisposition, two theories are advanced as to what actually occurs in the formation of the tumors. The first is that they result from areas of chronic mucosal irritation. Adenomas are often found in chronically inflamed areas. Certain tumors tend to develop in chronically irritated areas.

The second theory assumes the primary change to occur in the epithelial cells and the inflammatory change to be secondary. The fact that the mucosa adjoining the adenoma is frequently normal would point to this. Saint[3] believes that the tumor begins as a hyperplasia and hypertrophy of the epithelial cells, with submucous thickening, and the pedicle is formed as the tumor becomes progressively larger and traction is made by the fecal stream and peristalsis of the intestine.

I do not believe that the primary change is in the epithelium. It is my opinion that the primary lesion lies underneath the intestinal mocosa. The tumor begins as an enlargement of a small submucous nodule of lymphoid tissue and the epithelium over it is normal. What is the exciting cause for this primary enlargement I cannot say. It may be infection (plus predisposition), but if so there is no definite ulceration of the bowel wall. The sequence of events in the formation of these adenomas was noted during examination of cases in which single and multiple adenomas were present. In one spot would be a typically pedunculated adenomatous polypus, in another simply a little bulge of the mucosa as though there were a foreign body lying under it. A small hard nodule could be felt underneath, and the mucosa over this bulge appeared normal or slightly reddened. Many areas of mucosa were perfectly flat and normal in appearance. If, however, these normal areas were palpated with the finger tip, in some cases a small hard nodule could be felt underneath the mucosa. These nodules were about the size of a BB shot or even smaller. Excision of these nodules of various sizes revealed a uniform picture. Over the small nodules the mucosa was normal. As the nodule enlarged and pressed against the mucosa, pushing it into the lumen of the bowel, changes began to occur. The epithelium appeared irritated and in later stages began to dip down in true adenomatous fashion, the tumor became button-like and finally pedunculated.

Once formed, what influences the growth and end-results of the tumor? This probably depends on several factors. It is known, of course, that each tumor possesses its own blood supply. That is, that blood vessel formation occurs along with the development or in fact precedes the actual growth of the tumor. The primary vessels arise from the vessels of the bowel wall at the point of origin of the tumor. It is quite conceivable, then, that if the point of origin of the tumor happens to be in a rather avascular area of the bowel wall no very large blood supply can be developed. The growth of the tumor will be restricted and it will likely remain small and eventually retrogress into a polypus of the hard fibrous type. Of course superficial infection, torsion and attenuation of the pedicle also plays a part in these changes.

On the other hand, if the point of formation of the tumor is near a large blood vessel, the growth will be rapid and the tumor large. Theoretically, at least, the tumor could continue to grow indefinitely, though in reality the same factors already mentioned do produce fibrosis in some of these. There is little doubt, though, that it is this type with a liberal blood supply which, left undisturbed, eventually undergo carcinomatous change. It should also be mentioned that the nerve supply of a given tumor might influence the rate and extent of growth. Oertel[4] and others have shown tumors to have a definite nerve supply, but what influence this may have on growth has not been determined.

While the exciting cause or causes of the formation of adenomatous polypi of the large bowel are not definitely known, I am convinced that the earliest demonstrable pathologic change is not found in the cells of the mucosa lining the bowel, but as a nodule of lymphoid cells in the submucosal tissue.

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[2] Jüngling, Otto: Polyposis Intestini, Beitr. z. klin. Chir. **143**: 476-483, 1928.

[3] Saint, J. H.: Polypi of the Intestine, Brit J. Surg. **15**: 99 (July) 1927.

[4] Oertel, Horst: Innervation and Tumor Growth, Canad. M. A. J. **18**: 135 (Feb. 28) 1928.

FACTORS INFLUENCING THE TREATMENT OF RECTAL CANCER *

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The treatment of rectal cancer is a perplexing but interesting problem, on account of the numerous variable factors associated with this disease at the time a definite diagnosis is determined. Results will depend largely on the extent of the disease, the selection of cases and the type of treatment employed.

The manner in which cancer begins within the rectum is largely unknown. The consensus, however, is that it arises as a more or less circumscribed area in the rectal mucosa, where the glands undergo hyperplasia and hypertrophy. Dukes suggests that the origin of rectal cancer is closely associated with the simple adenomatous tumors. Regardless of the lack of knowledge of the earlier stages, it is known that the alveoli of the primary focus soon break through the tunica propria into the submucosa, where they gradually invade the lymphatics and muscular coats. The cell proliferation produces tumors which vary in the rates of enlargement, of infiltration and of dissemination.

Early recognition of rectal cancer, while the tumor is small and the disease is localized, offers many advantages to successful treatment. Unfortunately, a high percentage of these cancers are not recognized while in this favorable condition. Late diagnosis is frequently due to the failure of the patient or the clinician to interpret the symptoms properly, prior to the time the tumor has reached the sloughing stage. The percentage of early diagnosis of rectal cancer will be greatly increased when a rectal examination constitutes a part of the routine physical examination of all patients who present indefinite gastro-intestinal symptoms.

The chief problem to be solved after the true nature of the disease has been determined is that of providing the patient with the most appropriate treatment. The two methods of treatment that have proved of greatest value in this disease are radiation therapy and surgery. There is not any routine dosage of radiation therapy nor any routine surgical procedure suitable for all cases. In a miscellaneous group, the best results are obtained, in properly selected cases, by the unbiased and combined use of these two methods, and by varying the dosage and technic in accordance with the clinical and pathologic features of the given case.

The two forms of radiation therapy that have proved of greatest value in these deep-seated tumors are external applications of radium and roentgen rays, and interstitial applications of radon filtered by 3 mm. of gold. The surgical procedures that offer the greatest possibilities are the abdominoperineal and the perineal types of operations, while a colostomy affords a certain degree of palliation to the inoperable group.

Although the treatment of each case is a separate problem, a working classification is essential for descriptive purposes. Prior to the time that radiation therapy was found capable of producing clinical cures in this disease, cases were classified from a purely surgical point of view into operable and inoperable groups. The operable group consisted of those cases in which a radical operation offered the greatest possibilities of a clinical cure or the highest degree of palliation, while the inoperable group comprised those cases in which there was extensive disease or in which the patients were in poor physical condition and were therefore unsuited for such operations. Now that additional facilities are available for treatment, it appears more appropriate to classify cases of rectal cancer as favorable and unfavorable. As the favorable patients are those presenting strong possibilities of being rendered free from disease by surgery, radiation therapy or the combined use of radium and surgery, a number of inoperable cases will fall within the limits of the favorable group. Unfavorable cases are those suited only for palliative measures.

The importance of the latter classification may not at first sight be fully appreciated. By selecting cases in accordance with the character of the clinical and pathologic features rather than the operability, a higher percentage of clinical cures is likely to be brought about, and patients with unfavorable features are not subjected to dangers and discomforts of radical methods of treatment. Irradiation usually offers the inoperable patient much greater palliation without the possibility of an immediate fatality, than that provided by incomplete removals. Factors that suggest this classification and offer a rational basis for the most appropriate treatment are: (1) the physical condition of the patient; (2) the size of the tumor, together with the extent of infiltration and dissemination of the malignant cells; (3) the location and accessibility of the cancer; (4) the degree of malignancy of the neoplasm; (5) the degree of radiosensitivity of the cancer cells.

The physical condition of the patient should receive primary consideration, as the severity of treatment should not exceed his endurance. Only those patients who are able to withstand treatment adequate for the eradication of the disease are considered as favorable. Moreover, the degree of palliation in the unfavorable group frequently depends on the physical condition. The strain of radiation therapy is usually much less than that of radical surgery. A number of patients who because of their physical condition are unable to withstand a radical operation may be rendered clinically free from cancer by radiation therapy. Special attention should be given the physical condition when radical surgery is required. The selection of the type of operation is important, as certain surgical procedures are accompanied by a higher immediate mortality than others. The ultimate results of radical surgical removals will depend largely on the selection of cases, the type of operation, and the skill of the operator.

The ability of the patient to withstand treatment is estimated from the physical examination and laboratory observations. Old age, chronic constitutional diseases and obesity often limit treatment that otherwise might appear appropriate for the local malignant condition. The strain of an operative procedure may often be lessened by careful preparation of the patient, by the use of spinal anesthesia, and by preoperative transfusions of blood.

The estimation of the extent of disease is of vital importance in outlining treatment. Rectal cancer increases by direct extension and by the lymphatic and blood streams. Unless the disease is localized to the degree that all the malignant cells can be devitalized or removed, a clinical cure is impossible. The extent of the dissemination may be predicted from the history, physical examination, and the size, shape and degree of malignancy of the cancer. However, a more definite

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estimation of the spread of disease is possible by a careful exploration of the abdominal cavity, and by rœntgenograms of the pelvis and the lumbar vertebrae.

The local extent of the primary focus may be fairly accurately estimated by digital and proctoscopic examinations. The degree of infiltration and fixation are of value in determining the prognosis, as they are a fair criterion of the extent of invasion beyond the rectal wall. The importance of the infiltration will depend on what tissues are invaded and on the degree of malignancy of the cancer. Certain types of highly malignant tumors which have a tendency to infiltrate early and widely are seldom favorable, because the disease has usually extended much farther than the induration would indicate. Invasion of the bladder and the vagina usually contraindicates radical surgical intervention. Partial fixation may be due to inflammation or to the extension of the disease. Differentiation is often made possible by administering a moderate dose of external irradiation. The size of the mass, provided the disease remains localized, has but little bearing on treatment, except when interstitial irradiation is employed, when the dosage is always varied in accordance with the size of the mass.

The extent of disease limits the degree of palliation in the unfavorable group. The object of treatment in this type of case is to produce the highest favorable degree of restraint of growth and thereby to decrease the symptoms and improve the general condition. The dosage required to bring about uniform restraint varies with the size of the mass, but reactions may be lessened by using fractional doses and extending treatment over a longer period of time. The amount of infiltration and the involvement of nerve filaments will largely govern the degree of discomfort. Cancers that have invaded the pelvic tissues to the extent of producing constant pain are unsuitable for intensive treatment. Overdosage of interstitial irradiation in the advanced stages is detrimental rather than beneficial.

The anatomic location and accessibility of cancer within the rectum may greatly influence the selection of treatment. Radiation therapy is the method of choice for patients who can be rendered clinically free from disease by this comparatively simple method of procedure. However, favorable tumors selected for this form of treatment, unless highly radiosensitive, will require implantations of radon. Adequate interstitial irradiation can be carried out only when the tumor is sufficiently accessible to allow a proper placing of the emanation seeds. While tumors at any location between the rectosigmoidal juncture and the anal canal may be accessible, those of the middle and lower rectum frequently permit more accurate implantations. In the latter positions the needles may be inserted by way of the anal canal, the perineum or, in women, by the posterior vaginal wall. When partial stenosis of the lumen at the upper locations prevents the proper distribution, this difficulty may be overcome by the construction of a preliminary colostomy. In the construction of such an artificial anus, the section of sigmoid between the opening and the tumor is left sufficiently short to allow the passage of a proctoscope through the opening downward to the upper area of the cancer. Accessibility also aids the efficiency of palliative radiation therapy.

The most thorough surgical dissection for cancer at any location within the rectum is by the abdominoperineal type of operation, completed in one or two stages. However, because of the inability of many patients to withstand such a radical operation, this form of procedure is not always the method of choice. The perineal type of operation, when preceded by a colostomy, is accompanied by a much lower mortality and is capable of producing satisfactory results in properly selected cases. This procedure is most suitable for tumors situated below the reflection of the pelvic peritoneum. Therefore, the location of the cancer may be an important factor in determining the most appropriate type of operation.

The location and accessibility of cancer may afford advantages not only for either radiation therapy or surgery but also for the combined use of the two methods. While preoperative irradiation is valuable in a fair percentage of operable cases in providing additional assurance against incomplete removals it is of greatest value in fairly well advanced rectal cancers situated below the reflection of the pelvic peritoneum. Large tumors that have infiltrated beyond the reach of purely surgical dissection often lend themselves exceedingly well to the combined use of radium and surgery. In this type of case, radium is employed for devitalization of the cancer cells, and surgical removal for the prevention of the severe reaction that may be expected to follow large doses of radium. The method has its widest applications in large pelves. The vagina offers additional facilities for the implantation of radon into the tumor and limits the anterior spread of disease. The difficulties of surgical removal are not increased by preoperative therapy unless an interval longer than two weeks is allowed to elapse between procedures.

There is a wide variation in the degree of malignancy of rectal cancer, a fact clearly demonstrated by any group of untreated patients, in whom the duration of disease will vary from one to four years. The difference in the pernicious qualities of cancer had long been recognized, but it remained for Broders to emphasize this important factor and offer a working classification. Rectal cancers of low grade are usually much more amenable to treatment than those of a higher grade of malignancy. Through recognition of the type of malignancy before treatment is undertaken, many patients with incurable highly malignant cancers will be saved the unnecessary annoyance of radical procedures, while on the other hand patients with tumors of the lowest degree of malignancy will be rendered free from disease or provided with the highest degree of palliation.

In determining operability, the grade of malignancy is deserving of equal consideration to that afforded the extent of disease. A moderate-sized low grade rectal cancer in which the disease appears to be more or less localized may be completely eradicated by surgical dissection, while a similar surgical procedure, in the case of a tumor of the highest grade of malignancy but similar in size and fixation, is more likely to be detrimental than beneficial. Moreover, the grade of malignancy suggests a solution of the problem in determining the most appropriate type of operation. Operable tumors of low grade malignancy in the middle and lower rectum can usually be satisfactorly removed by the perineal route when the operation is preceded by a colostomy, while operable tumors of the rectosigmoidal juncture and those of a high grade of malignancy, wherever located, usually require the more extensive abdominoperineal resection.

The malignant qualities also influence the technic and dosage of radiation therapy. Highly malignant tumors are cellular and usually radiosensitive and require a comparatively small dosage. Overdosage in this type of cancer tends to produce necrosis and sloughing. In certain instances the employment of interstitial irradiation is contraindicated. Tumors of a low grade of malignancy lend themselves well to the latter form of treatment, although they require for devitalization a comparatively large dosage of gold seeds.

The malignant qualities of rectal cancer are manifest in the rate of enlargement of the primary mass, the rate of infiltration into the surrounding tissues, and the rate of dissemination of the cancer cells to distant regions. These factors vary in different tumors, as certain types will disseminate very early in the course of the disease, while others will remain localized for comparatively long periods. A fairly accurate estimation of the degree of malignancy may be obtained from the history and physical examination, and from the clinical and histologic examination of the mass.

Cancers occurring in patients below the age of 30 are usually highly malignant. Above this age there are many exceptions to the rule that the younger the patient *the more malignant the cancer.* The *duration and* severity of the symptoms in comparison to the size and fixation of the primary mass is of importance in estimating this factor. A long history of mild subjective and objective symptoms associated with a comparatively small tumor without deep infiltration suggests low malignancy, while a sudden onset of severe symptoms of only a few months' duration accompanied by a comparatively extensive mass indicates a more highly active process. The onset and rate of progression of anemia, weakness, loss of strength and other constitutional symptoms are usually in proportion to the degree of malignancy.

Tumors of the various grades present different clinical appearances. The rapidly growing, early infiltrating cancers tend to encircle the rectum, pushing the mucosa inward. They are most frequently encountered about the middle of the rectum in young women. The mass grows rapidly and usually has attained a large size before ulceration takes place. There is much less induration than in other types. The most pernicious quality of this type is the early and wide infiltration, as dissemination takes place comparatively late in the course of the disease.

The clinical appearance of another common highly malignant type is quite different. This variety enlarges slowly, but infiltration and ulceration occur early in the course of the disease. Usually the picture presented is that of a comparatively small tumor with a crater in the center and elevated degenerated edges. Fixation is at the base of the crater. Bleeding is easily produced by mild trauma, and considerable infection is noticed. The most common location for this variety is in the lower rectum. Histologic study of the foregoing types suggests either grade 3 or grade 4.

The *most common* type of *rectal cancer* is of *medium* grade malignancy, usually classified histologically as grade 2. In this type there is more uniformity of the rate of enlargement, of infiltration and of dissemination than in other varieties. In other words, the size of this type of tumor, its degree of infiltration and its extent of dissemination are in about the same ratio. These tumors lie in different locations within the rectum and are most frequently encountered in patients between 40 and 65 years of age. There are several distinct clinical types of tumors of medium malignancy which may be readily recognized by their own typical appearance.

The commonest variety of the least malignant rectal cancers is the stenosing scirrhous tumor, which occurs most frequently in elderly patients. They encircle the bowel and cause a constriction of the lumen by narrowing or squeezing in its circumference. The bulk of the cancer remains within the constricted rectal wall and does not extend outward into the lumen. These tumors are very hard, and ulceration is superficial. The objective symptoms remain mild for a comparatively long period, but obstipation is usually a troublesome factor. Another type of tumor that remains of low grade malignancy for considerable time is the malignant papilloma. The latter type is easily recognized by the mild induration and the typical appearance when viewed through a proctoscope. The histologic study of these types of tumors suggests grades 1 or 2.

While histologic grading offers the easiest method of estimating the grade of malignancy, it is not always the most accurate. The biopsy submitted may not reveal the true characteristics of the tumor, for in rectal cancers the outlying areas may be altered by secondary *infection and degeneration.* The *most adequate* determination of this important factor is by the combined application of the clinical and histologic studies of the case.

The radiosensitivity of rectal cancer is also a variable factor that is worthy of consideration. In the early stages of disease, highly malignant tumors are also highly radiosensitive. But as the condition progresses, the radiosensitivity is often altered by infection, so that radiosensitive tumors may become radioresistant, on account of this secondary factor. The two types of rectal cancer that are most favorable for radiation therapy are those which are most radiosensitive and those which are strongly radioresistant. The latter require intensive dosage, which is easily supplied by gold filtered emanation seeds. The intermediate grades due to alterations brought about by mixed infection present additional difficulties. The estimation of the degree of radiosensitivity is possible from the calculation of the degree of malignancy, the amount and depth of infection, together with the clinical appearance of the mass. However, a more definite determination of this factor is possible by observing the response of a moderate dosage of external irradiation.

A review of the foregoing factors clearly demonstrates the importance of a careful study of each case of rectal cancer and emphasizes the advantages of selective treatment. While there may be some difference in opinion as to the treatment of choice in patients who are truly operable, I think that every one is agreed that the highest degree of palliation is possible by radiation therapy or radiation therapy and palliative surgery. The advantages afforded by radiation therapy in this disease will depend not only on the factors mentioned but also on the technic and dosage of the physical agents.

121 East Sixtieth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FANSLER AND BINKLEY

Dr. Edward G. Martin, Detroit: I trust that these papers may promote a more uniform and routine examination of the rectum and colon. It is pathetic when one realizes that the majority of rectal cancers, within the reach of one's index finger, are referred to some one who will examine them only after the condition has gone far, far too long to accomplish other than some palliative relief. I question whether a man could justify himself for not making a digital examination at least, in every case that presents any reference to rectal symptoms; I question whether he could defend himself against a malpractice suit. *Dr. Fansler's discussion of rectal polyps is* of great interest, particularly to men who think of the cause as well as the practical treatment of malignant conditions—to the precancer stage and its treatment. Dr. Bloodgood believes that every polyp is potentially malignant and eventually becomes malignant, and he recommends resection in all cases; in other words, radical removal. I think it is such men as Dr. Binkley and such discussions as he has presented that are of the utmost value in promoting new methods; and surely radium and high voltage roentgen therapy are comparatively new methods of treatment. I have seen but little of such work and I am not competent to speak with authority on the subject, but if some one does not take the lead and wade through the storm of objections in attempts to find something that is going to help, that help will never be found; assistance is what such men need. He has not seemed biased in his presentation; he is evidently not offering a single-track cure. I have little faith in high voltage roentgen therapy; have never seen any benefit from it in rectal carcinoma and I know nothing of it in combined treatment as recommended by Dr. Binkley, but I hope something will come of it.

Dr. Descum C. McKenney, Buffalo: Dr. Fansler did not mention one thing that may be the cause of polyps, and that is *Bilharzia*. He mentioned that adenomatous polyps bleed readily. My observation is that single ones in children do, but larger ones in adults may not. They will reach a considerable size before there will be any bleeding at all. In cases of ulcerative colitis, by frequent sigmoidoscopic examinations I have watched the formation of adenomas in two ways. One is by the peeling off of the thickened edge of an ulcer, leaving one edge attached. The other is in the healing of ulcers; the apparently normal columnar epithelium between the ulcers when the ulcers healed and contracted has been squeezed out into the lumen of the bowel, forming a polyp. I have always thought that polypi were due to irritation and inflammation. When, however, polypi are removed and one finds microscopic evidence of inflammation in some and not in others, the question arises whether the inflammation is the cause of or the result of injury. Dr. Fansler has done good work. I hope he will continue it and make a further report.

Dr. C. J. de Bere, Chicago: I have been interested especially in the paper of Dr. Fansler, because in the last three months I have had the opportunity to observe a case which is great proof and justification of what he has just said. A man, aged about 30, complained of bleeding, tenesmus, and some increase in the number of stools. This bleeding was found to be due to a polyp in the rectal ampulla. The polyp was removed and microscopic examination proved that it was nonmalignant. About two months later, he returned again complaining of bleeding, and on proctoscopic examination it was found to come from a soft, oval growth at the base of where the polyp had been removed. A microscopic examination proved that it was adenocarcinoma. Bensaude has brought out the fact that those polyps on a large base with a small pedicle are those which turn malignant, more so than the polyps with a small base and a long pedicle. As far back as 1890, Hartmann and Quénu brought out this fact when they showed the terrible significance of this malignant degeneration by reporting eighteen cases out of twenty-four. In 1907, Doering reported twenty-two out of fifty-seven, and in 1910 Lynch reported forty-six in a hundred. I am sure everybody will agree that there is a definite place for radium therapy in the management and treatment of carcinoma of the rectum. Often the big problem is to keep the patient comfortable and often this cannot be done by surgery. However, I do think that this ought to be done by a man who is skilful and experienced in this line of work, who not only knows all the details of the technic of radium insertion but also is acquainted with the type of tissue to treat and how to treat it.

Dr. Collier F. Martin, Philadelphia: Dr. Fansler's paper is instructive, but there is more I desire to know. Infection, irritation, the mechanics of muscular activity, are factors, but what is that factor that incites cell proliferation? What starts this process in one individual and not in another? I was extremely interested to hear Dr. Fansler's reference to the little indurations—not at the site of the polyps, but in other portions of the bowel—that show a process going forward which might result in multiple polyposis. My experience with cases of multiple adenomas has been rather unfortunate. I have seen many terminate in a malignant condition. I have heard of few cures. Recently I saw a woman, aged 60, who had been bleeding from the rectum. On examination I found two small adenomatous polyps about 12 cm. from the anal margin. Her physician was an electrotherapeutist. He fulgurated them. Six or eight months later, the patient was still bleeding; I found a carcinoma about 2 cm. above the site of the former adenomas. Below that point were two other small polyps of recent origin. Since then she has had the rectum excised and has a good chance of recovering, at least from the operation. I am Presbyterian enough to feel that "what is going to be, will be" and that some people are doomed to death from malignancy no matter what is done. Dr. Binkley's paper impresses me with the fact that the use of any one method in the treatment of a malignant condition is not enough; one kind of surgery is not sufficient, nor is radium, used alone, sufficient. It is not alone what is done but how it is done that brings results. The crying need is for men interested sufficiently in malignant conditions to specialize in saving as many unfortunates as possible. I care not whether he uses one method or many; he must have faith and courage to do everything possible to keep that poor person alive and to make him happy.

Dr. Dudley Smith, San Francisco: The important part of Dr. Fansler's paper is the insistence that careful examination should be made of the rectum and sigmoid for polyps. There is no question that these polyps are much more frequently malignant in their early stages than has been believed in the past. In the last two years I have found six small polyps not larger than the tip of my little finger that were definitely adenocarcinoma. I know that Dr. Binkley is doing particularly good work in advancing the technic of radiotherapy in these cases and that the time may come when this method of treatment and the technic may be improved to the point at which it will be felt that more cases may properly be treated by radiotherapy alone. But I do not believe that that stage has yet been reached, especially in other parts of the country, as much as they have at the Memorial Hospital in New York.

Dr. John L. Jelks, Memphis, Tenn.: I treat many chronic dysenteries, and I find that adenomatosis develops quite frequently in this class of cases; therefore, I would necessarily lean to the theory that carcinoma is thus developed by first, irritation, and hyperplasia, which causes first the nonmalignant growth, and, secondly, the development in the base of that growth. Who started the idea that cancer does not occur in the Negro? It does occur. Not infrequently I have seen cases of cancer in the Negro. I have two such cases now. The only probable cause and field for irradiation in cancer of the anorectal region is in the anal or fixed portion of the alimentary canal; second, as a placebo and for hastening the then inevitable end. In removing one of these little insignificant looking adenomas, one should cauterize its base deep and not be afraid to do it, for it is going to develop cancer.

Dr. W. A. Fansler, Minneapolis: Some of the men have gone so far as to say that all patients with multiple polyposis, unless they die of intercurrent infection, hemorrhage or other complications, sooner or later develop a malignant condition. I think very likely that is a true state of affairs. Dr. McKenney spoke of relative bleeding in children and adults. I think it is simply that in children the polyps are softer and more easily injured than they are in those formed in an adult; in any case there must be injury to the mucosa before they bleed. Some one asked the causes of the formation of adenomatous rectal polyps. I think that these adenomas are caused by irritation, not primarily in the mucosa but in the submucosal tissue, and it is only when the mucosa is pushed up into the lumen of the bowel where it is mechanically irritated that changes in the mucosa itself begin. I do think that these are all potentially carcinomas and should be removed. How this irritation gets underneath the mucosa I do not know. There are certain infections that can get through the epithelial surfaces, which are apparently unabraded. So in the mucosa there must be some microscopic abrasion but not necessarily anything that can be seen with the naked eye.

Dr. G. E. Binkley, New York: Dr. Martin brought out the point that I was trying to emphasize; namely, that as a result of the various factors associated with this disease there is not any one method of treatment suitable for all cases. In order to provide patients with treatment most appropriate for their condition, one must employ various surgical procedures and radiation therapy. Dr. Smith favors the abdominoperineal type of operation. This procedure certainly has its place in the treatment of rectal cancer but is frequently accompanied by a high immediate mortality. By selecting the cases one may often obtain some satisfactory results by less radical methods, a percentage of patients retaining a normal or practically normal terminal gastro-intestinal tract. Dr. Jelks does not appear very happy about radiation therapy in rectal cancer. If he would attend our clinic I am sure we could prove to him that adequate radiation therapy is beneficial rather than detrimental.

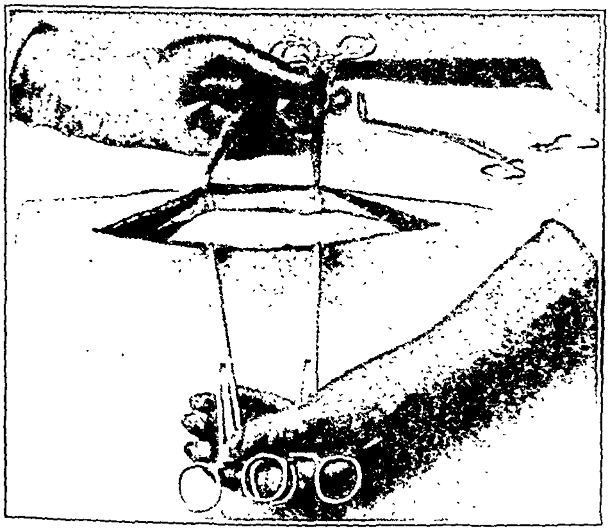
Clinical Notes, Suggestions and New Instruments

PRACTICAL ADVANTAGES OF THE TOGGLESQUEEZE HEMOSTATIC FORCEPS

D. M. Littlejohn, M.D., Pana, Ill.

The handles of hemostatic forceps during major operations have a tendency to stick up in the way and become entangled in the suture material being used. The togglesqueeze hemostatic forceps eliminate to a large extent these operative handicaps, as they lie flat when in use and at right angles with the incision.

Most, if not all, forceps that are now on the market are constructed so that they act on the scissors principle. It is evident, therefore, that the jaws of these instruments operate on the same plane with that of the handles, making it impossible to grasp the peritoneum in abdominal operations without leaving the instrument parallel to, or the handles at a right angle with, the body surface. In either case the operator is materially impeded in his work.



Togglesqueeze hemostatic forceps used as retractors.

The togglesqueeze forceps are so constructed that the opposing jaws are at right angles with the handles and operate in such a manner as to allow the instrument to lie flat when in use. The 90 degree angle of the jaws furnishes a convenient and efficient method of holding an incision open without further need of special retractors. The instrument is easily manipulated, requiring little pressure to lock securely and unlock the handles, which is made possible by the toggle lever construction. The instrument is manufactured from extremely durable material and should be used over a long period without adjustment or repair. In abdominal work from four to eight are usually needed, depending on the length of the incision.

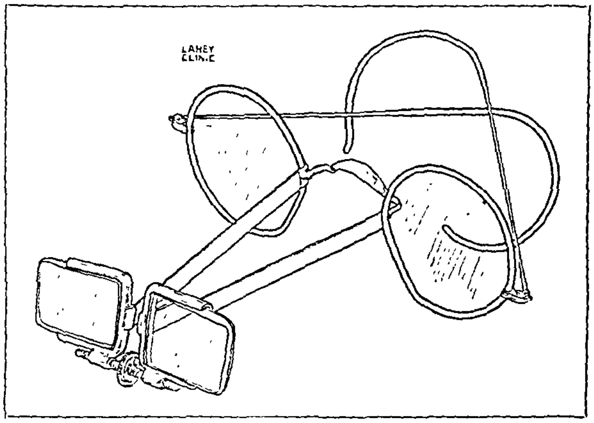
105½ East Second Street.

A BINOCULAR LOUPE

Frank H. Lahey, M.D., Boston

The employment of the binocular loupe, illustrated, has been of such service to me that this note is inserted with the idea that it may prove of value to other surgeons.

The illustration shows the frame with the magnifying lenses projected before it. In the frame may be inserted lenses that are demanded by the individual surgeon's eyes, and the magnifying lenses advanced before these may be obtained with the magnification of either two or three times normal size.



Binocular loupe.

The focal range of the lenses is such that there is a safe distance between the lenses and the operative field, so that contamination of the field is avoided.

The lenses have been of particular value to me in searching specimens of thyroid removed for possible parathyroids; these parathyroids to be immediately implanted, as I have suggested, at the time of operation.

The lenses have also been of distinct value in magnifying structures in the region of the inferior thyroid artery which could be demonstrated by magnification to show nerve fibers and the recurrent laryngeal nerve.

The loupe in no way interferes with ordinary vision but makes immediately available double to triple magnification of a small area of the field when necessary.

URTICARIA DUE TO BEDBUG BITES [*]

T. Preston Churchill, M.D., Fort Worth, Texas

A. H. D., a man, aged 29, seen at 2:30 a. m., Sept. 28, 1930, had wheals from 15 to 20 cm. in diameter over the body, legs, arms and face. The eyes were closed from swelling of the lids. These wheals were still growing and showed numerous large pseudopodia around the periphery. In the center of these wheals were small puncture wounds that apparently were due to insect bites or stings. The administration of epinephrine, ephedrine and cold baths caused the wheals and the intense itching that accompanied them to disappear after a few hours. Investigation of the bedding showed numerous bedbugs.

The patient stated that he felt fine when he went to bed. He noticed a slight biting, then intense itching and turned on the light. His eyes swelled shut within a few minutes.

The next morning the left eye was still closed, but the remainder of the wheals had disappeared except for a slight induration around the puncture wounds. Just within the border of the left eyebrow there was a puncture wound. The tissue around this was indurated and reddened.

The past history revealed that the patient had had urticaria on several occasions after eating strawberries for several successive days. He did not recall having been bitten by bedbugs before. There was no history of asthma or hay-fever in his family.

600 West Tenth Street.

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[*] From the Department of Pathology, Northwestern University Medical School

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SATURDAY, DECEMBER 27, 1930

THE GRAVES SYNDROME

Nearly a hundred years has elapsed since Graves, in 1835, called attention to a condition commonly termed Graves' disease in English-speaking countries and morbus basedowi on the continent. In more recent years it has been classified with disorders of the thyroid gland under the designation of exophthalmic goiter. The patient who exhibits the cardinal signs has tachycardia, tremor, enlarged thyroid and exophthalmos, together with an increased basal metabolic rate. Errors in diagnosis are, however, not infrequent. One or more of the classic symptoms may be missing; or so-called neurocirculatory asthenia may be confused with the full fledged form of the disease. The reason probably lies in the fact that the latter has a slow evolution that may extend over many years. At a given moment, some of the familiar criteria may be missing or unestablished. Moschcowitz[1] has therefore insisted that it is rather in the summation of the various disease processes than in the rigid determination of one or more criteria that the diagnosis is rendered possible. For this reason the term "syndrome" is more applicable in this connection than the term "disease." It is becoming increasingly apparent, in Moschcowitz's judgment, that in order to be able to classify diseases on a sound biologic basis one must observe disease over a far greater period than one has been accustomed to think. There are probably many maladies regarded as distinct species, which are in reality merely stages of disease processes that have thus far received different names and the relation of which is still unsuspected. Such observations, Moschcowitz adds, are obviously more within the scope of the practitioner than of those who work in institutions or as consultants.

This is merely another way of pointing out that the classification of exophthalmic goiter must be regarded from the dynamic rather than from the static point of view. In other words, it does not merely represent a disease in which various signs are artificially grouped together but rather a biologic series of disorders that have received various names in the past. The natural history of the disease extends over a long period. According to Moschcowitz there is one common denominator for the clinical signs; namely, a neuropathic personality or temperament. This brings to mind the modern conception of a constitutional tendency that predisposes to the Graves syndrome. It is undoubtedly strongly influenced by environmental factors; hence the consideration that the latter deserve in the treatment of patients.

Starting with a constitution of the sensitive type—an emotional personality—the exciting cause of the fully fledged Graves syndrome is, according to Moschcowitz, usually traceable to a psychic insult which is in the nature of a surprise. The dominant inciting factor is likely to be fear. From this point of view the familiar and usually most conspicuous hyperthyroidism is in reality not a primary event in the evolution of the Graves syndrome. Hyperplasia of the thyroid may be lacking; in fact, there appears to be no parallelism between the extent and the intensity of the hyperplasia and the clinical expression of the disease.

A proper diagnosis calls for detailed knowledge of the family history. There are persons who present signs of the neuropathy of exophthalmic goiter but who show little of the physical evidences except perhaps a tachycardia and a tremor. These patients are sensitive, emotional, anxious, tense and irritable, representing what has sometimes been termed autonomic imbalance. In Moschcowitz's words, the touchstone for the diagnostic approach is the reconstruction of the patient's personality or, in other words, his constitution. Of lesser importance, but nevertheless illuminating, is the determination of the exciting psychic insult. The insult is sometimes lacking but the constitution never is. Accordingly the basal metabolism may best be regarded not as a diagnostic sign of the Graves syndrome but as the sign of hyperthyroidism and as the best measure of activity of the disease that one possesses at present.

This point of view aids in interpreting many of the known features of the Graves syndrome. Moschcowitz points out that the racial incidence of the syndrome conforms to what one would expect of ethnologic sensitivity. It is uncommon in races of coarser mental fiber and is common in those of subtler mental reactions and where the strain of existence is keener. The Graves syndrome is apparently a social disease of the higher civilizations. In the development of the influences in which the disorder is likely to develop, such factors as religion, the social and political status, and the availability of the country for sustenance are probably important. The relation of the psyche to the development of the Graves syndrome is shown in the rarity of this disease in children, in whom the adjustable, reasoning and emotive powers are not fully developed.

Surgical intervention is often resorted to in order to decrease the hyperthyroidism. Nevertheless, recurrences are sometimes encountered. These may be better understood if the existence of a potential sensitive constitution is admitted. The latter cannot be eradicated by operation. The constitution, Moschcowitz remarks, persists after any form of treatment, so that cure is never wholly obtainable. The most profound effect of thyroidectomy is on the basal metabolism. Furthermore, as this constitution is profoundly influenced by environment, the treatment of the patient should not cease after thyroidectomy.

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[1] Moschcowitz, Eli: The Nature of Graves' Disease, Arch. Int. Med. 46: 610 (Oct.) 1930.

THEORIES OF THE ACTION OF ANESTHETICS

Although the applications of anesthetics in medicine and dentistry have been widely extended and the technic of administration steadily improved, surprisingly little advance in the elucidation of the mode of action of this group of pharmacologic agents in the living cells of the organism has been made in late years. In a recent review Henderson[1] has summarized the present status of the theories of narcosis, limiting the discussion to those substances known to depress the central nervous system without inducing permanent change in the nerve cells. Dehydration, asphyxia, changes of surface tension in the cell colloids, adsorption, changes in membrane potential, lipoid solubility and precipitation of cellular constituents have all formed the basis of theories at various times, but with one or two exceptions sufficient evidence has been brought forward to render each postulate largely invalid.

Although by no means the latest of the proposed explanations of narcosis, the theory of Meyer and Overton has received considerable experimental support. In outlining this conception of the action of narcotics, it is stated that those substances which are fat soluble and can thus penetrate the cell wall and distribute themselves within the cell act as narcotics to the living protoplasm. The relative biochemical potency of these compounds depends on their coefficient of partition between the aqueous phase of interstitial fluid and protoplasm and the fatty substances composing the cell. The nerve cells, consisting in large part of lipoids which apparently play an important part in their function, are thus more markedly affected by narcotics than are other cells. Although the basic assumptions of the theory have been criticized adversely, in general it seems the most useful explanation of the phenomenon of narcosis thus far proposed although, even here, it must be admitted that the finer details are missing.

Claude Bernard suggested that those compounds known as narcotics owed their efficiency to the production of a reversible coagulation of the substance of the nerve cell, a theory that has received little favor among students of the general problem. However, Bancroft and Richter[2] have recently adduced data which lead them to consider that this colloid coagulation theory is the correct one. They made use of a model consisting of a carefully prepared culture of yeast cells to which, after preliminary observation under an ultramicroscope, amyl alcohol was added. After a short time brownian movement gradually stopped, then coagulation within the cells became visible, and flocculation of the cells occurred. The narcotized yeast was promptly washed with fresh medium by centrifugating and the culture was observed to return slowly to its original state. The cells exhibited brownian movement once more, were completely peptized, and reproduced as they had done before being narcotized. On the basis of these experiments the Cornell investigators throw the weight of their approval to Claude Bernard's theory of narcosis, pointing out, however, that they believe that the colloids involved are the proteins of the protoplasm rather than the lipoids.

A consideration of the various explanations of the phenomena of narcosis brings out the fact that the evidence for the mode of action of the compounds producing the narcosis in vivo is largely based on biochemical reactions observed in vitro or on relatively simple models, both animate and inanimate. It has been pointed out repeatedly that the physical and chemical equilibriums maintained in the organism during life are extremely complex. A disturbance in one set of factors may bring about a totally unexpected change in a series of other factors. The translation of results obtained with simple biochemical systems to the actions within the body consequently has its limitations. Who can predict when some fact arrived at in this manner will provide the key to a more perfect understanding of even as complex a phenomenon as the reaction of narcotics on the living cell?

IN PRAISE OF CALCIUM

Not until comparatively recent years have students of practical dietetics devoted any serious consideration to the rôle of inorganic nutrients in food. Instinct, which was long lauded as the safe guide to ideal nutrition and which is still heralded even by physicians, has been shown to have its definite limitations in the choice of foods by man. A generation ago Ellen H. Richards, an American pioneer who exhibited zeal for the application of science to daily life, wrote: "It is unsafe to trust the individual to the guidance of the appetite alone, for the reason that this instinct was built up for a condition of existence very different from that which enables the people of this country to indulge themselves today." Realizing the effect that changes in the transportation and distribution of commodities were exerting on the availability of the food supply, she sensed "conformity to scientific laws as the only way to safety."

Among the mineral nutrients, calcium has the dominant place from the standpoint of quantitative needs.

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[1] Henderson, V. E.: Present Status of Theories of Narcosis, Physiol Rev. **10**: 171 (April) 1930.

[2] Bancroft, W. D., and Richter, G. H.: Proc. Nat. Acad. Sc. **16**: 573, 1930.

It constitutes about 1.5 per cent of the body—nearly 3 pounds in the case of an adult man. Of this, over 99 per cent is present in the bones. The latter are today a recognized storehouse for calcium, this element having a far greater degree of "mobility," or freedom of liberation and transport, than is generally suspected. The best estimates currently available suggest the advisability of a daily intake of 1 Gm. or more of calcium in order to prevent loss of the indispensable element. Although calcium is abundantly present in nature, it is unevenly distributed in human foods; in fact, most of them are characterized by a paucity of calcium. For example, the cereal grains, tubers, meats, fish and fruits, all of which are prominent in the dietary of omnivorous man, are comparatively poor in calcium. On this account Sherman has remarked that the "ordinary mixed diet" of Americans and Europeans, at least among dwellers in cities and towns, is probably more often deficient in calcium than in any other chemical element.[1]

A recent investigation in the department of chemistry at Columbia University by Sherman and Booher [2] has stressed anew the relation between the calcium intake and the calcium content of the growing body. Animals with comparable heredity and nutritional backgrounds and with all factors other than food maintained strictly uniform were supplied with food of differing calcium content. It was thus found that individuals otherwise well nourished but with low calcium intake do grow up with calcium-poor bodies. It is also evident, as a result of these experiments, that the body may be able to retain calcium at a subnormal rate on a diet relatively poor in calcium and so at an abnormally late age may finally come to approximate a normal percentage of body calcium. Sherman and Booher therefore insist that application of these observations to the problem of normal human nutrition should prevent any relaxation of attention to adequate calcium supply in the food. Vitamin D as a "calcium-mobilizing" factor is not a substitute for calcium. The body at birth has a low calcium content and its normal development involves a large increase not only in the amount but also in the percentage of calcium that it contains, and so requires a liberal supply of calcium in the food. Otherwise the growing body remains calcium poor, even though it shows every external appearance of being well nourished.

Milk is ordinarily looked on as the superlative source of calcium, and with due justice. During the World War the U. S. Food Administration insisted, in its educational texts,[3] that the free use of milk tends to build up a strong nation. It taught that the importance of milk can hardly be overemphasized, since there is no other food so vital to national health and efficiency. Some writers have gone so far as to assert that calcium is not advantageously absorbed from most foods other than milk, and particularly not from artificial inorganic supplements of calcium to the diet. Recent studies by Potter and Kramer [4] at the Kansas Agricultural Experiment Station, Manhattan, make such generalizations untenable. Healthy women ingested alternately milk and calcium lactate under otherwise comparable dietary conditions in which the items mentioned supplied two thirds of the available calcium. They appeared to utilize the inorganic calcium as effectively as the calcium of raw milk.

Current Comment

THE VITAMIN A OF BUTTER

Next to milk, which is often described as "the most nearly perfect food," probably no single dietary component has received more laudatory mention from dietetic experts than has butter. This has not been due primarily to the high energy value of the milk fat, for many fats and oils of equal food fuel value and ready digestibility are available everywhere at far lower prices than butter of good quality commands. The palatability and characteristic flavor commend it to many persons; but the student of nutrition is likely to refer first of all to the comparative richness of good butter in vitamin A. In the long-standing debates between the advocates of margarines of varied sorts and the promoters of butter, one no longer hears of complaints regarding the insanitary conditions under which the "butter substitutes" were alleged to be manufactured, or the indigestibility of the substitute fats, or their hygienic qualities. Butter is today lauded primarily because of the indispensable vitamin that it contains; and the producers of margarines have not been slow to venture to incorporate vitamin A into their "artificial" products as effectively as possible. As Sherman [5] has pointed out, legislation in the United States has generally been such as to discourage the oleomargarine industry, and our present knowledge of the wide difference in vitamin value between butter and oleomargarine, he adds, naturally and properly tends to increase the preference of consumers for butter. According to Sherman it appears safe to say that none of the butter substitutes approach good butter in vitamin value and that butter, even when of poor quality, is likely to be much richer in vitamin than any other commercial form of food fat. The latest developments in the scientific study of vitamin B have an unexpected bearing on the possible food value of butter fat. It seems to be clearly established that the physiologic action of vitamin A can be reproduced, or at least closely simulated, by administration of the plant pigment carotene [6] (or carotin, as it is usually designated by American chemists). This helps to explain the nutrient virtues conspicuous in foods that are rich in carotinoid pigment. Morton and Heilbron[7] of the University of Liverpool have recently demonstrated that the nonsaponifiable matter from butter contains both carotene and vitamin A. The natural color of butter thus endows it with unexpected physiologic virtues not formerly suspected.

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[1] Sherman, H. C.: Chemistry of Foods and Nutrition, New York, Macmillan Company, 1926.

[2] Sherman, H. C., and Booher, L. E.: The Calcium Content of the Body in Relation to That of the Food, Proc. Soc. Exper. Biol. & Med. **28**: 91 (Oct.) 1930.

[3] Food and The War, U. S. Food Administration, Boston, Houghton Mifflin Company, 1918.

[4] Potter, Myra T., and Kramer, Martha M.: Utilization of Milk and Inorganic Calcium and Phosphorus, J. Home Econ. **22**: 923 (Nov.) 1930.

[5] Sherman, H. C.: Food Products, New York, Macmillan Company, 1924.

[6] Von Euler, B.; von Euler, H., and Hellström, H.: Biochem. Ztschr. **203**: 370, 1928. Von Euler, B.; von Euler, H., and Karrer, P.: Helv. Chim. Acta **12**: 278, 1929. Moore, T.: Lancet **1**: 499 (March 9) 1929; Biochem. J. **23**: 803, 1267, 1929. Collison, D. L.; Hume, E. M.; Smedley-Maclean, I., and Smith, H. H.: Biochem. J. **23**: 634, 1929.

THE POTENCY OF EPINEPHRINE

In former generations the great potency of minute quantities of certain drugs and poisons elicited the interest of professional students and aroused general curiosity. The realization that less than a grain (64 mg.) of some of the alkaloids may constitute a fatal dose for man and that glyceryl trinitrate, for example, in doses of less than 1/100 grain—less than a milligram—is pharmacologically potent and therapeutically useful awakened varied conjectures. Of late, these "wonders of science" have been supplemented by demonstration of the surprising functional potency of substances that are not ordinarily foreign to the body, as are drugs or poisons, but occur as components of food or the secretions of some of the glands. Thus the digestive enzymes can transform many thousand times their weight of specific complex foodstuffs into smaller chemical molecules. There is barely one-tenth ounce of iron in the entire body of a full grown person, or 1 part in 25,000 by weight; yet it is of importance not only in maintaining the integrity and functions of the blood but undoubtedly also in other "vital" activities of living cells. The total wastage of iron incident to the "wear and tear" of the tissues probably does not exceed one-fifth grain of iron, the equivalent of little more than a trace of iron rust. In a recent lecture in London, Professor de Quervain[8] of Berne, who has had vast experience in the prophylaxis of goiter, insisted that the physiologic intake of iodine should not exceed 0.5 mg. daily. In fact, this indispensable element is present in the body in amounts approximating only 0.0004 per cent of the body weight. Deprivation of the physiologic minimum spells distress and, in time, disease. The dosage of the vitamins is still too inadequately known to permit more than rather uncertain statements. There is no doubt, however, that one part of vitamin D in many million parts of the body can function effectively. Cori and Buchwald[9] of the State Institute for the Study of Malignant Disease, Buffalo, have recently secured information regarding one of the best known hormones, the epinephrine of the adrenal structures. This substance was injected intravenously into normal men for a period of thirty minutes; 0.00005 mg. for each kilogram per minute proved to be the lowest rate of injection that still caused a rise in blood pressure, blood lactic acid and basal metabolism; 0.000025 mg. for each kilogram per minute was still able to increase pulse rate, respiration and blood sugar. After the administration of epinephrine, the pulse rate, respiration and blood pressure returned to the original level in from five to ten minutes, and basal metabolism in fifteen to thirty minutes, while generally more than thirty minutes was required for blood sugar and blood lactic acid. These potencies are somewhat greater than the lowest effective dosages found in some of the laboratory animals. The vascular system of man is therefore decidedly more sensitive to epinephrine. This, Cori and Buchwald aver, is undoubtedly the reason why a subcutaneous injection of epinephrine may produce a rise in blood pressure in man when it fails to do so in other species.

Association News

CONTRIBUTIONS TO PERSHING MEMORIAL

Numerous physicians have sent in their contributions to the fund for the decoration and maintenance of the Medical Salon in Pershing Hall in Paris. The total sum thus far received is $721.10. It is hoped that many additional contributions will be received. The total sum to be raised is $10,000. The individual contributions here recorded represent less than 10 per cent of the total amount required. Group contributions by medical societies, hospital staffs, and other medical organizations will be especially welcomed. A supplementary list of the contributors up to noon of December 22 follows:

J. D. Pettet, M.D., Arcadia, Kan.
Oscar A. Mockridge, M.D., Montclair, N. J.
Carl V. Vischer, M.D., Philadelphia
Thomas S. Roberts, M.D., Minneapolis
H. T. Partree, M.D., Torrington, Conn.
Herman B. Slotkin, M.D., Philadelphia
L. B. Drake, M.D., Ogdensburg, N. J.
W. Houston Toulson, M.D., Baltimore
C. A. Earle, M.D., Des Plaines, Ill.
Charles S. Bumgarner, M.D., Davenport, Wash.
D. G. Smith, M.D., Nashua, N. H.
George D. Jeffers, M.D., Parkersburg, W. Va.
Leo A. Newcomb, M.D., Montpelier, Vt.
Joseph Aspray, M.D., Spokane
Edwin O. Swanson, M.D., St. Paul
Daniel R. Robert, M.D., New Lebanon Center, N. Y.
William Petry, M.D., Newark, N. J.
J. H. Baker, M.D., La Crosse, Kan.
C. L. Garris, M.D., Berlin, N. H.
Roy P. Forbes, M.D., Denver
M. C Johnston, M.D, Aberdeen, S D.
J. D. Madison, M.D., Milwaukee
William H Dudley, M.D., Los Angeles
W H. Roberts, M D., Pasadena, Calif.
Lyman S. Hall, M D, Broken Bow, Okla.
Augustin V. Mendel, M D., Newark, N J
Edward C. Klein, Jr., M.D., Newark, N. J.
Richard P. Strong, M.D., Boston
Fred C. Sabin, M.D., Little Falls, N. Y.
Walter A. Sherwood, M.D., Brooklyn
Mark H. Wentworth, M.D., Boston
Solomon Hermann, M.D., Brooklyn
Jacob M. Cahan, M.D., Philadelphia
E. L. McCrea, M.D., Table Rock, Neb.
Henry R. Rado, M.D., Mt. Vernon, N. Y.
Hermann Grad, M.D., New York
A. L. Van Meter, M.D., Stockton, Calif.
Carl H. Schnaer, M.D., Chicago
Hyman Green, M.D., Boston
Mark Sutphin, M.D., Logan, W. Va.
John E. Boyd, M.D., Jacksonville, Fla.
Horace Reed, M.D., Oklahoma City
P. E. Rossiter, M.D., Lee Hall, Va.
Edgar W. Young, M.D., Petersburg, Va.
R. B. Rossell, M.D., Buffalo
Paul M. Patterson, M.D., Hollywood, Calif.
E. B. Schrock, M.D., Seattle
C. A. Kirkley, M.D., Los Angeles
W. H. Bunn, M.D., Youngstown, Ohio
Harry Gold, M.D., New York
Clinton Day, M.D., Hart, Mich.
Frank R. Mount, M.D., Oregon City, Ore.
Willis P. Baker, M.D., Santa Ana, Calif.
Marion County Medical Society, Knoxville, Iowa
J. William Ledbury, M.D., Uxbridge, Mass.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10.15 on Tuesday, 10:30 on Thursday and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 29. The Story of Anesthesia.
December 30. Radium Fakes.
January 3. Climate and Tuberculosis.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

December 29 Concerning Germs.
December 30 Concerning Germs
December 31 Endemic Diseases.
January 2. Cold Facts.
January 3. Winter Vigor

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[7] Morton, R. A., and Heilbron, I. M.: Vitamin A of Butter, Biochem. J. **24**: 870, 1930.

[8] London Letter, J. A. M. A. **95**: 1188 (Oct. 18) 1930.

[9] Cori, C. F., and Buchwald, K. W.: Effect of Continuous Intravenous Injection of Epinephrine on the Carbohydrate Metabolism, Basal Metabolism and Vascular System of Normal Men, Am. J. Physiol **95**: 71 (Oct.) 1930.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

INDIANA

Personal.—Dr. Theodore E. Collier was guest of honor at a reception given by citizens of Brook in recognition of his thirty-six years' practice in the community and active participation in civic enterprises; the celebration was held on his sixty-eighth birthday. Dr. Collier was presented with a book containing the autograph of each guest.

Society News.—The fifteenth annual meeting of the Indiana Society for Mental Hygiene was held, December 8, in Indianapolis. Among the physicians who appeared on the program were: Drs. Louis P. Harshman, Fort Wayne, who spoke on "Training for Teachers of Special Classes"; Charles C. Wilson, Evansville, on "Special Provision for Retarded Children"; Harold S. Hulbert, Chicago, on "School Clinics"; Frank F. Hutchins, Indianapolis, on the teaching of mental hygiene in professional schools; Helen P. Langner, Indianapolis, on "Teaching Mental Hygiene in a Training Course for Social Workers"; William F. King, Indianapolis, on "Magnitude of Mental Hygiene as a Public Health Problem"; Louis F. Ross, Richmond, on "Organization of the Mental Hospital and Its Rôle in Community Life," and Sidney D. Wilgus, Springfield, Ill., on "Organization of Community Facilities for the Prevention, Care and Treatment of Nervous and Mental Diseases."——Dr. Harry Malcome Hedge, Chicago, addressed the La Porte County Medical Society, November 20, at La Porte on "Treatment of Common Skin Diseases," illustrated.——The Hamilton County Medical Society was addressed, November 11, at Arcadia by Dr. Robert M. Moore, Indianapolis, on "Internal Medicine."——At the annual election of the Indianapolis Medical Society, December 2, in Indianapolis, Dr. Edmund D. Clark was made president, and Dr. Chester A. Stayton, secretary.

MARYLAND

Hospital News.—A department of oncology has been opened at the University of Maryland Hospital, Baltimore. The work of the department, which is a subdepartment of surgery, has been divided into two groups, one for the treatment of gynecologic conditions and the other for the treatment of general surgical problems. Dr. John Mason Hundley, Jr., is in charge of the gynecologic section and Dr. Grant E. Ward will be in charge of the general surgical group. Every facility for the management of neoplastic diseases will be available and will include surgery, electrosurgery, radium and high voltage roentgen therapy. Private as well as nonpaying patients will be received.

Society News.—At a conference on public health under the auspices of the Maryland League of Women Voters in Baltimore, December 4-5, Dr. William H. Welch presided; among the speakers and subjects on the program were Drs. Samuel Wolman, the tuberculosis problem in Maryland; John Whitridge Williams, maternal and infant hygiene, and Josephine Baker, school hygiene. Dr. Haven Emerson, New York, spoke at the evening session on "Medical Economics."——Dr. Wilbur A. Sawyer, associate director, International Health Division, Rockefeller Foundation, gave one of the De Lamar lectures in hygiene on "Recent Progress in Yellow Fever Research," December 9, at the Johns Hopkins University School of Hygiene and Public Health.

De Lamar Lectures at Johns Hopkins.—The following De Lamar lectures will be given on the dates indicated at the School of Hygiene and Public Health of Johns Hopkins University:

Dr. William Lloyd Aycock, assistant professor of preventive medicine and hygiene, Harvard University Medical School, January 6, "The Epidemiology of Poliomyelitis."

Raymond Adams Dutcher, professor of biochemistry, Pennsylvania State College, State College, Pa., January 27, "Factors Influencing Vitamin Distribution in Foods."

Dr. Thomas Parran, Jr., commissioner of health, state of New York, March 3, "Venereal Diseases."

Dr. William B. Wherry, professor of bacteriology and hygiene, University of Cincinnati College of Medicine, March 31, "Hypersensitivity to Bacterial Proteins and Its Rôle in Susceptibility and Immunity."

Dr. George F. McCleary, deputy senior medical officer, Ministry of Health, England, April 14, "The Prevention and Cure of Narcotic Drug Addiction."

MICHIGAN

Dr. Ewing to Give Beaumont Lectures.—Dr. James Ewing, professor of pathology at Cornell University Medical College, New York, will give the tenth annual Beaumont lectures, January 26-27, in Detroit, under the sponsorship of the Wayne County Medical Society. The titles of Dr. Ewing's lectures will be "Causation of Cancer," "Diagnosis of Cancer" and "Treatment of Cancer."

Society News.—The Oakland County Medical Society was addressed, November 18, at Pontiac by Dr. Bertil T. Larson on "The Diagnosis of Mastoiditis," and Dr. Harold A. Furlong, "Early Diagnosis of Pregnancy by Means of the Aschheim-Zondek Reaction."——Dr. Walter C. Alvarez, Rochester, Minn., addressed the Washtenaw County Medical Society, December 13, on "Problems of Gastro-Enterology."——Dr. Arthur C. Curtis, Ann Arbor, addressed the Gratiot-Isabella-Clare Counties Medical Society, November 13, on "Laboratory Methods in Everyday Diagnosis."——Dr. Chester W. Waggoner, Toledo, addressed the Wayne County Medical Society, Detroit, December 2, on "Chronic Duodenal Stasis."

Personal.—Reuben L. Kahn, Sc.D., has returned from the serologic conference at Montevideo, Uruguay, September 15-25, where he demonstrated the Kahn reaction.——Dr. Harry T. Gray recently resigned as city health officer of Owosso and has been succeeded by Dr. Walter E. Ward.——Dr. Jacob D. Brook, Grandville, was elected full-time health officer for the Kent County Health Unit, December 9; the new unit will be instituted, January 1.——Dr. Reuben Peterson, Ann Arbor, has resigned as professor of gynecology and obstetrics at the University of Michigan Medical School, Ann Arbor. A dinner was given in honor of Dr. Peterson, December 1, by the Detroit Obstetrical and Gynecological Society.

Proposal to Limit Use of Roentgen-Ray Apparatus Defeated.—On the recommendation of the Wayne County Medical Society, the Common Council of the City of Detroit declined, November 24, to pass an ordinance proposing to prohibit the use of electrical vibrating equipment for roentgen-ray machinery between 7 p. m. and midnight. It was urged by proponents of the ordinance that such use interfered with radio reception. Resolutions adopted by the medical and civic relations committee and presented to the council pointed out that the use of diathermy and roentgen-ray apparatus during the hours from 7 p. m. to midnight is for the benefit of the public, which must be served in accidents and therapy cases during these hours; and that in 1,000 investigated cases the whole twenty-four hours' use of diathermy and roentgen-ray apparatus represents less than 2 per cent of all interference in radio reception, which would mean that interference between 7 p. m. and midnight would be of negative quantity.

MINNESOTA

License Revoked.—The license to practice medicine of Dr. Philip Mueller, Minneapolis, was revoked, December 2, by the Minnesota Board of Medical Examiners after he had been found guilty of habitual indulgence in morphine sulphate. Dr. Mueller served two years in the state penitentiary at Stillwater after he was convicted, June 6, 1913, of manslaughter following the death of a woman on whom an abortion had been performed.

"Specialist" Placed on Probation.—According to the secretary of the State Board of Medical Examiners, Ada Winchel, who was said to maintain offices in St. Paul under the title of "Arabian rheumatic specialist," was sentenced, December 8, by Judge R. D. O'Brien, of the district court, to serve a term not to exceed one year in the women's reformatory at Shakopee. The charge was that of violating the basic science law. The sentence was suspended and the woman was placed in the custody of a probation officer on condition that she close her office and refrain from practicing in any way in Minnesota.

NEW YORK

Dr. Ramsdell Resigns as Health Officer.—Dr. Edwin G. Ramsdell has resigned as municipal health officer of White Plains, effective January 1, after fifteen years' service and will be succeeded by Dr. Edward H. Marsh, secretary of the New York State Department of Health. The White Plains health work is under the control of the Westchester County Health Commission. White Plains is said to be the first of four cities —White Plains, Yonkers, Mount Vernon and New Rochelle—

to enroll in the county health unit, which is administered by both the county and the state, each of which pays half the operating expenses. Dr. Matthias Nicoll, Jr., resigned, January 16, as state health commissioner in order to accept the position of health commissioner of the newly created Westchester County Health Unit. Dr. Ramsdell will retire from active public health work.

Licenses Revoked and Suspended.—The Board of Regents of the University of the State of New York, reports that at a meeting, November 21, five physicians were disciplined as follows:

Dr. Philip Korn, New York, license revoked for performing a criminal abortion.
Dr. Stephen J. Spencer, Buffalo, license revoked for fraud and deceit in the practice of medicine.
Dr. Joel Grosner, New York, license revoked because he had been found insane.
Dr. Alexander Angus, New York, license suspended for six months for aiding and abetting an unlicensed practitioner.
Dr. Irving P. Withington, New York, ordered to appear before the Grievance Committee of the Board of Regents early in January for censure and reprimand.

New York City

Personal.—W. Frank Walker, D.P.H., has been appointed to the staff of the Commonwealth Fund; the statistical service of the fund, recently set apart from the division of publications, will be developed into a separate division and will be headed by Dr. Walker and will continue the established services to child guidance clinics.

New York to Have Behavior Clinic.—A behavior clinic to study and help adjust cases of retarded, maladjusted, truant and otherwise delinquent children is soon to be opened under the direction of the public school system of New York. An appropriation of $100,000 asked for by the board of education has been approved by the board of estimates, it is reported. There will be two units: a main clinic centrally located for diagnosis and treatment of acute and chronic cases of maladjustment and behavior problems arising in schools among older pupils; and a branch for investigations along diagnostic and preventive lines among younger children. The main clinic will be under the supervision of an expert psychiatrist aided by a pediatrician, case workers and psychologists. A smaller but similar staff will be in charge of the branch.

Society News.—Dr. Harold Neuhof of Mount Sinai Hospital will give the second lecture in pediatrics and cognate sciences, January 6, on "Surgical Treatment of Suppurative Lesions of Lung and Pleura."——"Schistosomiasis in Porto Rico" was the subject of an illustrated address given by William A. Hoffman, D.Sc., assistant professor of parasitology, School of Tropical Medicine of the University of Porto Rico, December 22, at Mount Sinai Hospital.——Dr. William P. Healy addressed the Medical Society of the County of New York, December 22, on "Present Status of the Diagnosis and Treatment of Cancer."——At the meeting of the Yorkville Medical Society, December 15, Dr. Herman O. Mosenthal presented an address on "Clinical Aspects of Nephrosis (Diabetes Albuminuricus)," and Dr. Priscilla White, Boston, "Care of the Diabetic Child."——Dr. Charles Norris spoke on "The Medical Examiner's Office in Its Relation to the Physician," and Dr. Bernard Glueck, Ossining, on "Recognition and Management of Every-Day Problems in Mental Hygiene" before the New York Physicians Association, December 17.——Dr. Joseph Colt Bloodgood, Baltimore, will read a paper on "Breast Tumors in Relation to Chronic Cystic Mastitis," January 5, before the Medical Society of the New York Polyclinic Medical School and Hospital.——The Flatbush Medical Society was addressed, December 12, by Drs. Walter D. Ludlum on "The Attitude of Organized Medicine to the Economic Problems of the Doctor," and John J. A. O'Reilly, "The Effect of Political Control on the Economic Status of Medicine."——The German Medical Association of New York celebrated its seventieth anniversary with a dinner, December 6. Drs. William H. Welch, Baltimore, and John A. Hartwell were honor guests.

OKLAHOMA

Society News.—Among others addressing the Oklahoma City Clinical Society, November 5-7, were Dr. Francis M. Pottenger, Monrovia, Calif., on "Importance of Visceral Neurology in General Medicine," and Dr. Melvin S. Henderson, Rochester, Minn., on fractures. Dr. Irving W. Potter, Buffalo, conducted a clinic in obstetrics.——Dr. John T. Wharton, Durant, gave an address on "Ether Anesthesia" and Dr. Joseph S. Fulton, Atoka, read a paper on the organization and accomplishments of the medical profession before the Bryan County Medical Society, November 18.——Drs. Rex G. Bolend, Oklahoma City, and Shade D. Neely, Muskogee, addressed the Muskogee County Medical Society, November 16, on "Features in Diagnosis and Treatment of Syphilis" and "Prostatitis, Nonvenereal," respectively.

GENERAL

Grants to Aid in Research.—The Committee on Scientific Research of the American Medical Association invites application for grants of money to aid in research on problems bearing more or less directly on clinical medicine. Preference is given to requests for moderate amounts to meet specific needs. For application forms, address the committee at 535 North Dearborn Street, Chicago.

Another Medical Journal.—The *American Journal of Orthopsychiatry*, which made its first appearance in October, will be published quarterly by the American Orthopsychiatric Association and contain the proceedings of the annual meetings. The journal is devoted to the publication of articles covering any and all of the issues involved in the study and treatment of behavior difficulties, more especially those illustrating the dynamic interrelationships within the human personality. Dr. Lawson G. Lowrey, New York, is editor.

News of Epidemics.—Thirty-nine cases of scarlet fever were reported in Johnstown, Pa., during November and up to December 4.——More than 100 cases of scarlet fever had been reported in Indianapolis from October to December 4.——An outbreak of forty-two cases of diphtheria occurred in an elementary school in Schenectady, N. Y., shortly after the opening of the school year; thirty children were reported to be still in the city isolation hospital, November 19.——More than 100 cases of measles were reported in Iron Mountain, Mich., up to November 28.——Twenty-one cases of tularemia were recorded in Illinois during the week of December 1.

Society News.—At the autumn meeting of the Society for the Study of Asthma and Allied Conditions, December 6, the speakers with their subjects were: Drs. Joseph Harkavy, New York, "Infectious Asthma and Its Relationship to Chronic Sinus and Pulmonary Infections"; Arthur F. Coca, "Studies of Artificial Complex Antigens," and Henry W. Straus, Brooklyn, "Artificial Sensitization of Infants to Poison Ivy."——The annual meeting of the American Social Hygiene Association will be held, January 23-24, in New York with headquarters in the Hotel Pennsylvania. The tentative program includes papers by Harry E. Barnard, Ph.D., director of the president's White House Conference on Child Health and Protection, on "The White House Conference," and Henrietta Additon, director, New York City Crime Prevention Bureau, "The Prevention of Crime and Delinquency."——At the annual meeting of the Seaboard Medical Association of Virginia and North Carolina, December 5, Dr. James H. P. Culpepper, Norfolk, was elected president, and Dr. Clarence Porter Jones, Newport News, secretary, reelected. The next annual convention will be held in Suffolk, beginning the first Tuesday in December, 1931.——The eastern section of the American Laryngological, Rhinological and Otological Society will meet in Atlantic City, January 5.

The Danger from Methanol.—Regarding the statement issued December 6 by the Bureau of Mines on the effect of methanol antifreeze on health, Surg. Gen. Hugh S. Cumming, when asked, said that the U. S. Public Health Service had kept in touch with the observations being made by the Bureau of Mines. He felt there was need for the immediate release of information which would protect the general public. It appeared from the study so far that there was much more danger from exhaust gas (carbon monoxide) than could possibly come from methanol when used strictly as an antifreeze liquid in automobiles. The greatest danger, he said, is that some one might drink methanol, especially in view of its being used in place of ordinary denatured alcohol as an antifreeze, and in view of its other name, methyl alcohol. Methanol when taken internally is more certainly poisonous and more highly fatal than any denatured alcohol. According to press accounts, such poisoning has recently occurred in Pennsylvania. Another danger is in the use of methanol in shellacs which might be applied over considerable surfaces without adequate ventilation. The presence of the coloring matter as recommended by the Bureau of Mines and the addition of 23 per cent water as at present dispensed, guard antifreeze methanol against such dangerous use. A complete study is advisable as to how far methanol can be used safely in other ways; in the meantime, the surgeon general recommends that methanol be used by the general public as an antifreeze only, and that the precautions advised by the Bureau of Mines be strictly observed.

Report of Prohibition Commissioner.—The annual report of the Commissioner of Prohibition for the year ended June 30, made public December 8, shows that 191,859,342.42 proof gallons of alcohol was produced during the year. The decrease of nearly nine million gallons over the previous year was attributed to the current recession in industries using alcohol. There was withdrawn from bond, for denaturation, 181,601,420.34 proof gallons of alcohol and rum, also a decrease of about a million gallons; 105,787,537.72 wine gallons of denatured alcohol was produced. There are only two completely denatured alcohol formulas authorized at present. The most interesting development in the industrial alcohol trades for many years is the process of making synthetic ethyl alcohol from ethylene gas. The chemical corporation, granted a permit for that purpose during the year, will take rank with the large producers of alcohol now operating. The amount of denatured alcohol used for the manufacture of liniments and lotions was 1,113,293 wine gallons; for the making of drugs and medical supplies, 3,522,171 gallons, and for bathing alcohol, 1,071,776 gallons. At the end of the fiscal year there were 110,319 permits which had been issued to physicians, dentists, veterinarians, and so forth, and 2,773 permits to hospitals. The amount of whisky for medicinal purposes for which permits were issued for the year ending Dec. 31, 1930, was 2,104,000 proof gallons and the amount of brandy and rum for medicinal and general nonbeverage use was 50,000 proof gallons each. The manufacture of medicinal whisky was allotted to twelve warehousemen who were distillers or successors to distillers. These were the first spirits produced for medicinal purposes for nearly nine years. This report covers the last year when the administration of the prohibition laws were under the commissioner of prohibition. The Bureau of Prohibition, which was reorganized under an act of Congress, was transferred to the Department of Justice, July 1, 1930.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of Chicago, $200,000, of which one half is for the Frank Billings Medical Clinic and the other half for the general endowment fund of the university; Children's Memorial Hospital, $200,000; Visiting Nurse Association of Chicago, $25,000, and the United Charities of Chicago, $25,000 by the will of the late Thomas D. Jones.

Jewish Charities, $25,000; United Charities and Catholic Charities, each $10,000, and Mercy Hospital, Chicago, $10,000 by the will of Frederick I. Mandel.

A trust fund of $235,000 to provide for medical research in the prevention of blindness is created in the will of Mrs. Louis Chapin Norton, Provincetown, Mass.

Beverly Hospital, Beverly, Mass., $15,000 by the will of William C. Loring as a memorial to his sister.

Mount Sinai Hospital, New York, $20,000 by the will of the late Emanuel Van Raalte.

Philadelphia Home for Incurables, the residue of her estate, approximately $5,000, by the will of the late Mrs. Carrie Hammel.

New York Post-Graduate Medical School Hospital and Fifth Avenue Hospital, New York, each $25,000, and Presbyterian Hospital, New York, $100,000 by the will of Mrs. Emma Robbins.

Columbia University, $500,000 from Edward S. Harkness to supplement his original gift of $2,000,000 for a residence hall at the Medical Center.

Chicago Memorial Hospital, about $750,000; United Charities, $25,000; Illinois Society for the Prevention of Blindness, $10,000, and Jackson Park La Rabida Sanatorium, $10,000, all of Chicago, by the will of the late George H. McCammon.

West Philadelphia Hospital for Women, Philadelphia, $5,000 on the death of her sister, Sarah Borton Peck, by the will of the late Dr. Elizabeth L. Peck.

New York Post-Graduate Hospital, $10,000, and Memorial and Reconstruction hospitals, each $5,000 by the will of the late William Archer Purrington.

North Woods Sanatorium, Saranac, N. Y., Montefiore Hospital and Hospital for Joint Diseases, New York, each $240,652, and Mount Sinai Hospital, $15,000 by the will of the late Mrs. Minnie Hayman.

New York Orthopedic Hospital, New York, $50,000 by the will of the late Marion Borden, Middletown, N. Y.

Mount Sinai Hospital, New York, $7,500 by the will of the late Mrs. Selina E. Sommerfield.

Light House of the New York Association for the Blind, $250,000 by the will of the late Charles L. Denison, Saddle River, N. J.

Federation of Jewish Charities, $2,500; Jewish Hospital Association, $1,500; Mount Sinai Hospital, Philadelphia, $1,500, and Eagleville (Pa.) Sanatorium, $1,000 by the will of the late Adolph Loeb.

Beekman Street Hospital, New York, $50,000 by the will of the late William Hamlin Childs.

Presbyterian Hospital, New York, $15,000 by the will of the late Clara Beales Obrig.

St. Vincent's Hospital, Manhattan, $10,000 by the will of the late Mrs. Margaret O'Connor Kieley.

Ernest V. Cowell Memorial Hospital, Berkeley, Calif., $1,595 from alumni of the University of California for furnishings and equipment.

Truesdale Hospital, Fall River, Mass., endowment of $500,000 by Earle P. Charlton.

Mount Sinai Hospital, New York, $10,000 by the will of Laurence Davies.

St. Mary's Hospital, Hoboken, N. J., $15,000 by the will of the late Gustave Vintschger.

Presbyterian Hospital, Newark, N. J., $25,000 by the will of the late Robert Crabb.

Southside Hospital, Bay Shore, $10,000; Memorial Cancer Hospital, $5,000; Woman's Memorial Hospital, $15,000, and St. Luke's Hospital, all of New York, the entire residuary estate of Mrs. Jane E. Andrews.

People's Hospital, Peru, Ill., $3,000 by the will of Louise Loekle.

Manhattan Eye, Ear and Throat Hospital, New York, $100,000 by the will of Lloyd W. Seaman.

Carlisle Hospital, Carlisle, Pa., $10,000 from the estate of Noah Hoover of Franklin County.

Medical Bills in Congress.—S. 5064, introduced by Senator Broussard, Louisiana, proposes to authorize the erection of an addition to the veterans' hospital at Alexandria, La. S. 5071, introduced by Senator Smith, South Carolina, proposes to authorize the erection of a veterans' hospital in South Carolina. S. 5073, introduced by Senator Glenn, Illinois, and H. R. 14574, introduced by Representative Igoe, Illinois, propose to authorize an appropriation not to exceed $2,000,000 for construction at the Edward Hines, Jr., Hospital, Hines, Ill. S. 5074, introduced by Senator Glenn, Illinois, proposes the erection of an addition to the veterans' hospital, numbered 105, Chicago. S. 5081, introduced by Senator Robinson, Arkansas, proposes the erection of a 400 bed veterans' hospital in Arkansas. S. 5091, introduced by Senator Johnson, California, proposes to authorize the erection of an addition to the veterans' hospital at Livermore, Calif. S. 5092, introduced by Senator Johnson, California, and H. R. 14691, introduced by Representative Englebright, California, propose to erect a veterans' hospital in the inland part of California. S. 5093, introduced by Senator Johnson, California, proposes to erect a veterans' hospital in the southern part of California. S. 5102, introduced by Senator Carey, Wyoming, proposes to authorize the erection of a veterans' hospital at or near Thermopolis, Wyo. S. 5113, introduced by Senator Vandenberg, Michigan, and H. R. 14572, introduced by Representative Hooper, Michigan, propose to authorize the erection of an addition to the veterans' hospital, numbered 100, at Camp Custer, Mich. S. 5140, introduced by Senator Steck, Iowa, and H. R. 14453, introduced by Representative Campbell, Iowa, propose to authorize the erection of a veterans' hospital in Iowa. S. 5145, introduced by Senator Shipstead, Minnesota, proposes the erection of a convalescent hospital at the military reservation at Fort Snelling, Minn. H. R. 13568, introduced by Representative Ludlow, Indiana, proposes to authorize the erection of an addition to the veterans' hospital in Indianapolis. H. R. 14247, introduced, by request, by Representative Christopherson, South Dakota, proposes to increase the efficiency of the Veterinary Corps of the regular army by providing that officers shall be initially appointed in the grade of first lieutenant and shall be promoted after completion of the same periods of service as now provided by law for promotion of officers of the medical and dental corps of the regular army. H. R. 14443, introduced by Representative Crail, California, proposes to authorize the construction of additional hospital facilities at the Pacific branch of the National Soldiers' Home, Los Angeles County, Calif. H. R. 14457, introduced by Representative Evans, California, proposes to authorize the erection of an addition to the veterans' hospital, numbered 104, at San Fernando, Calif. H. R. 14561, introduced by Representative Hall, Mississippi, proposes to authorize the erection of an addition to the veterans' hospital at Gulfport, Miss. H. R. 14562, introduced by Representative Hull, Tennessee, proposes to authorize the erection of a veterans' hospital in middle Tennessee. H. R. 14569, introduced by Representative Aswell, Louisiana, proposes to authorize an addition to the veterans' hospital at Alexandria, La. H. R. 14571, introduced by Representative Fuller, Arkansas, proposes the erection of a veterans' hospital in the northwestern part of Arkansas. H. R. 14686, introduced by Representative Christgau, Minnesota, proposes to authorize the use of the Mayo Clinic by the Veterans' Bureau as a diagnostic center and for the treatment of a limited number of the more serious ailments. H. R. 14690, introduced by Representative Edwards, Georgia, proposes to erect a marine hospital at Savannah, Ga. H. R. 14704, introduced by Representative Williamson, South Dakota, proposes to authorize an appropriation for construction at the Battle Mountain Sanitarium, National Soldiers' Home, Hot Springs, S. D. H. R. 14701, introduced by Representative Eaton, Colorado, proposes to authorize additions to the Fitzsimons General Hospital, Denver. H. R. 14682, introduced by Representative Schafer, Wisconsin, proposes to authorize an appropriation for construction at the northwestern branch, National Home for Disabled Volunteer Soldiers, Milwaukee. H. R. 14449, introduced by Representative Welsh, Pennsylvania, proposes to convert veterans' hospital numbered 49 in Philadelphia to a diagnostic center.

Foreign Letters

AUSTRALIA

(From Our Regular Correspondent)

Oct. 30, 1930.

Plan for the Care of Crippled Children

At the first step in a plan to improve the condition of crippled children throughout Queensland, the Brisbane Rotary Club is preparing a register by circularizing the medical profession, churches, hospitals, police, and country women's associations. Each crippled child will be investigated as regards the nature of the disease, the prospect of improvement under treatment, and the nature of the treatment recommended. The last two aspects of the investigation will necessitate the examination of the children by orthopedic surgeons at central clinics. The inquiry is being conducted also into the resources available for the treatment of these children. The resources include orthopedic wards in hospitals, treatment by private practitioners, schools where vocational and ordinary education can be carried out in conjunction with orthopedic treatment, the placing of educated children, and hostel accommodation of those not amenable to improvement.

The first action of the crippled children's subcommittee of the Brisbane Rotary Club was to circularize the medical practitioners, acting on the principle established that no interference with private medical treatment shall take place. Under these conditions the scheme has the approval of the Queensland branch of the British Medical Association.

The commonest causes of crippling in Queensland are poliomyelitis and lead poisoning. Tuberculous bone lesions are rare.

Gift to Sydney University by Rockefeller Foundation

For the purpose of providing adequate laboratory facilities for the departments of medicine, surgery, pathology, bacteriology, and allied subjects of the medical curriculum, the Rockefeller Foundation of New York has contributed £100,000 to the Sydney University. Since the establishment of full-time chairs in medicine, surgery and bacteriology, made possible by the generosity of Mr. George Bosch of Sydney, the medical school of the university has been brought within the scope of the activities of the Rockefeller Foundation. This gift to the university was the outcome of the visit of Mr. Bosch and Professor Stump to America last January, when they explained in person the plans which the university had in view.

The Rockefeller Foundation has already exerted a beneficial influence in the medical educational field of Australia. Many fellowships have been awarded by the Foundation to graduates of Australian universities, and the Australian National Research Council has been subsidized in its anthropological researches.

The University of Sydney is becoming rapidly better equipped to develop its graduate teaching intensively and to provide better facilities for research in medical problems. It is the intention of the university to complete a new medical block close to the Royal Prince Alfred Hospital. The present medical building will continue to house the departments of anatomy, physiology, pharmacy and dentistry, and the new block will take in the department of medicine, surgery, pathology, bacteriology and other allied subjects, such as urology, which has been endowed by Dr. Gordon Craig. With these new developments and with the recently inaugurated School of Public Health and Tropical Medicine, the Medical School of Sydney University will continue to maintain its position in the forefront of the medical schools of the world.

Report on Cancer Treatment in Australia

Dr. Arthur Burrows, the commonwealth radium adviser, presented statistics to the recent cancer conference at Canberra showing that for the twelve months ended June 30, 1929, 2,500 cancer patients had been treated at various centers in Australia with the radium purchased by the commonwealth government. The majority of these cancer patients were inoperable; it is considered that 1,200 will have experienced alleviation of their symptoms. In Sydney, where the university senate acts as trustees of a fund of £100,000 subscribed publicly in New South Wales three years ago, the work has been carried out at the Royal Prince Alfred Hospital and St. Vincent's Hospital. At the Sydney Hospital there has been some delay in establishing a clinic owing to lack of accommodation. At the Royal Prince Alfred Hospital during the past twenty months more than 1,500 patients have attended the cancer clinic for diagnosis, consultation and treatment; more than 9,000 attendances of outpatients were recorded, apart from the indoor operative work. At St. Vincent's Hospital, which is about half the size of the Royal Prince Alfred Hospital and where the cancer clinic began work some months later, 350 patients have been similarly reviewed, involving about 3,000 outpatient's attendances apart, again, from the indoor surgical work. Treatment committees comprising physicians, surgeons, radiologists and pathologists selected from the honorary medical staffs of the hospitals meet regularly at the clinics in a reviewing capacity. By this method, a balanced opinion is obtained as to the method or combination of methods to be employed in each individual case.

The Hospital Problem of Melbourne

In recent years a political game of shuttlecock and battledore has been in progress in Victoria. It has involved the problem of the extension of hospital accommodations at Melbourne. The three main hospitals for the treatment of general patients—the Melbourne, St. Vincent's, and the Alfred—are well equipped and admirably managed, but they fall far short of meeting the demands for accommodations made upon them. The Melbourne Hospital is in the heart of the city, with street cars passing along three sides of it. It is convenient but noisy and restricted in area. Four years ago, Sir Stanley Argyle, a physician, was chief secretary of the state government then in office. In considering the question of hospital extension he adopted a grandiose scheme propounded by Professor Berry, head at that time of the medical school of the Melbourne University, for scrapping the present Melbourne Hospital and erecting a huge building on a large vacant space close to the university. The cost of this scheme was estimated at £800,000. Had it been permissible to sell the land on which the Melbourne Hospital now stands, all financial difficulties would have been overcome; but that could not be done. Sir Stanley Argyle did not seek legislative sanction for his scheme, and when the next government came into office it submitted an alternative plan for increasing each of the three metropolitan hospitals by the addition of another eighty beds each, and building a clinical hospital of a hundred beds in the university grounds for the training of medical students. The total cost of this proposal was estimated at £500,000. The board of charities approved of this plan, and the St. Vincent's and Alfred hospital authorities promptly accepted the government's offer and went ahead with the construction of the new wings. Before the Melbourne Hospital could do anything the government was again changed, and Sir Stanley Argyle, again becoming chief secretary, discarded the second plan and revived his original scheme. But again he failed to seek parliamentary sanction for the demolition of the Melbourne Hospital, and with the return to office of the former government the Melbourne Hospital management committee is again discussing the government's proposals for enlarging the hospital by building a new ward of eighty beds. The position is quite unsatisfactory and promises to remain so until the rival parties come to better understanding.

It is unfortunate that the miscarrying of Sir Stanley Argyle's plan for building a medical center near the university at Melbourne had weakened the request by the University of Melbourne

The Austrian System of Compulsory Health Insurance

The government regulation of sick relief for employees and workmen was established by the act of July 1, 1927, and supplementary legislation was passed in 1929. As a result, many of the smaller health insurance societies were merged into larger organizations. Since that time there have been four distinct types of health insurance societies (*krankenkassen*); *gebietskassen*, or regional societies (four); *betriebskassen*, or societies of industrial plants (twenty-one); *genossenschaftskassen*, or societies of certain trades (five), and *vereinskassen*, or group health insurance applied to previously existing organizations (twelve). The total insured membership of these four groups of societies, at the close of 1929, was 992,333, 48 per cent of which membership was in Vienna. The four regional societies comprised 76 per cent of the insured, whereas the *genossenschaftskassen* had only 5 per cent, and the *betriebskassen* only 3 per cent. There is still a tendency for the smaller societies to become absorbed by the larger societies. The figures do not give a clear picture of the actual conditions affecting the economic life of physicians in Austria, for in many societies also the families of society members are insured against sickness, and, in addition, there are the three large health insurance societies that take care of the government civil servants, the municipal civil servants and the government railway employees, respectively, in all of which the families are likewise fully insured. The total membership of these three societies is 600,000, of which 350,000 is in Vienna. Therefore, about 50 per cent of the population of Vienna is insured in some way against sickness and do not have to consult a physician in private practice; the remaining 50 per cent are either unemployed or, by reason of the economic stringency, are able to consult a physician in private practice only in dire emergency. The compensation received by the panel physicians of the health insurance societies is painfully uniform. The initial salary of the general panel practitioner is about 300 schillings, or $43, a month, with a 10 per cent increase every three years, up to a maximum of 550 schillings, or about $80. Specialists receive an initial salary of 400 schillings ($58), with increases up to 700 schillings, or $100. For the treatment of members of the family of the insured an additional sum is allowed, depending on the number of such members that consult the physician. As a rule, the serving of more than one health insurance society by a physician is discouraged, in order that the oncoming generation of physicians may obtain at least enough compensation to exist. The income of a practicing physician who is almost entirely dependent on the health insurance society will average from 800 to 1,000 schillings ($120-$150). It should be mentioned, however, that nearly all panel physicians with fixed compensation are entitled to old age insurance with a pension that ranges from 35 to 100 per cent of the last salary received, depending on the length of service. The pension system constitutes an inducement to many physicians to seek engagement as a panel physician, just as many persons desire a position in the government service by reason of the assurance of adequate care in old age.

Securing Directors for Vacancies in Vienna Clinics

Through the resignation of Professors Wenckebach and Ortner as directors of the two clinics for internal diseases, a difficult situation has been created. For the position of Wenckebach, the first to receive consideration were Professors Assmann of Leipzig and Vollhard in Frankfort. However, an agreement could not be reached with either one of them. Tentative offers were then made to Morawitz in Leipzig and Schittenhelm in Kiel. To the great surprise of academic circles, both men rejected the offers, probably on account of the reactionary attitude of the majority in the collegium of professors. On the other hand, Prof. Dr. Schmidt of the German University of Prague has consented to take over the direction of this clinic in Vienna. Furthermore, Professor Tagić, a clinician of Vienna, is being considered as successor to Professor Ortner, who is at present suffering from bulbar paralysis. A strong group, however, would like to secure Prof. Dr. Eppinger, who until recently was an instructor at the University of Freiburg but who has been called to Cologne. The decision will soon be reached. For the position of director of the first surgical clinic, which became vacant through the retirement of Professor Hochenegg on attaining his seventieth year, Professor Clairmont, who is now in charge of the surgical clinic in Zurich (Switzerland), has been chosen. The second clinic for surgery in Vienna (the Eiselsberg clinic) also will soon be in need of a director, who will likewise be difficult to find, as this post requires a man of international prominence, and such men will likely make demands that Vienna will be unable to meet.

Indications for Treatment in Appendicitis

In the seminar for practicing physicians, which is held in Vienna every week by the collegium of doctors of medicine, Privatdozent Dr. Demmer presented a paper on the topic "When Should an Operation Be Performed in Acute Appendicitis and When Should a Conservative Attitude Be Taken?" The classic symptoms required by strict indications are often wanting. Of 450 operations that the author performed for acute appendicitis, 160, or 35 per cent, came to operation too late, with the result that 72 cases proved fatal; 69 cases became perforated; in 89 cases drainage was necessary; 55 cases had nearly reached the forty-eight hour limit, and 99 patients were admitted after the forty-eight hour period. Not even a third of all cases showed before the operation the classic symptom complex. Often a disorder of the adnexa, of the gallbladder, duodenal ulcer or acute gastro-enteritis is suspected. Neither an ice bag nor opium nor calomel and castor oil should be prescribed. The last mentioned remedy has often been found in the abdomen after an "explosive" perforation. Dr. Demmer recommends in every inflammatory peritoneal process that the patient be removed to a surgical department before the lapse of forty hours since the onset of the attack, because a later removal often causes perforation. It is important that the shifting of the inflammation to the peritoneum is recognized in time and is correctly understood. The following management is recommended: differential axillary and rectal temperature determination, a small enema of 1 pint in the dorsal position, a steam pack applied to the abdomen with a thermophore, in the dorsal position; no food other than tea. The case is urgent if, in spite of the aforedescribed treatment, even a single symptom becomes more prominent within three to six hours and the enemas are unsuccessful, or the pulse and temperature show an upward trend, or if the difference between the axillary and the rectal temperatures is more than 1.5 degrees centigrade and is increasing or is constantly more than 1 degree. The latter cases are always to be regarded as grave. The greatest differentiation between the axillary and the rectal temperature hitherto observed was 2.2 degrees. The rapidity of the increase in temperature is an important point. If the symptoms just described are not present, a conservative attitude may be maintained, provided all symptoms are most carefully controlled.

Marriages

Theodore A. Dykhuizen, Indianapolis, to Miss Zella Gwendolyn Tuttle of Greencastle, Ind., in Cincinnati, October 11.

George J. Van Besien, Dixon, Iowa, to Miss Ella Genevieve Minihan of Davenport, October 16.

Charles Murray Gratz, New York, to Miss Bernice Delemar West, December 9.

Howard Harpst to Miss Helen Louise Jones, both of Toledo, Ohio, October 10.

Luther S. Hirt to Mrs. Minnie Laverty, both of Brazil, Ind., October 5.

Deaths

Robert Martin Culler ⊕ Lieut.-Colonel, U. S. Army, retired, Oxford, Md.; Jefferson Medical College of Philadelphia, 1901; member of the American College of Surgeons; entered the army as assistant surgeon in 1904; rose through the various grades to that of lieutenant colonel; served during the World War; retired in 1922 for disability in line of duty; aged 53; died, August 4.

Henry Thomas Machell, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1873; L.R.C.S., Edinburgh, and L.R.C.P., Edinburgh, Scotland, 1875; emeritus professor of obstetrics and pediatrics, University of Toronto Faculty of Medicine; for many years on the staffs of St. John's Hospital and the Hospital for Sick Children; aged 80; died, November 9.

Ernest Ellsworth Smith ⊕ New York; Bellevue Hospital Medical College, New York, 1898; professor of physiology and biological chemistry, Fordham University School of Medicine, 1906-1911; secretary of the Medical Society of Queens County; aged 62; died, December 5, of heart disease.

John Charles Lawlor ⊕ Dover, N. H.; Harvard University Medical School, Boston, 1915; member of the Associated Anesthetists of the United States and Canada and the American College of Surgeons; served during the World War; aged 42; died, December 9, of pneumonia.

Abe Hayman, Brooklyn; Medical Department of the University of the City of New York, 1890; member of the Medical Society of the State of New York; for many years on the staff of the Beth Moses Hospital and the Jewish Hospital; aged 61; died, November 30.

Charles Bowman Bacon, Brooklyn; University of Buffalo School of Medicine, 1897; member of the Medical Society of the State of New York; superintendent of the Kings County Hospital; aged 60; died suddenly, December 10, of heart disease.

Maritt J. Rand ⊕ Ely, Nev.; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1907; member of the Associated Anesthetists of the United States and Canada; aged 52; died, November 5, of arteriosclerosis.

William Leland Mitchell ⊕ Budapest, Hungary; Washington University School of Medicine, St. Louis, 1918; field director of the Rockefeller Foundation, International Health Division; aged 37; died, November 20, of arteriosclerosis.

John Ralph Commorato ⊕ Jersey City, N. J.; Columbia University College of Physicians and Surgeons, New York, 1908; served during the World War; aged 44; died, November 29, in St. Francis Hospital, of septic poisoning.

Baxter Morgan Haynes, Spartanburg, S. C.; North Carolina Medical College, Charlotte, 1905; member of the state board of medical examiners; at one time county health officer; aged 51; died, November 18, of a self inflicted bullet wound.

Roy Cleveland Long, Johnson City, Tenn.; University of Tennessee College of Medicine, Memphis, 1912; on the staff of the Mountain Branch of the National Home for Disabled Volunteer Soldiers; aged 49; died, October 1.

Charles Edward Lovell, Whitman, Mass.; Dartmouth Medical School, Hanover, N. H., 1885; member of the Massachusetts Medical Society; member of the board of health of Whitman; aged 69; died, October 31.

John Stanley Boyer, Detroit; University of Michigan Medical School, Ann Arbor, 1924; member of the Michigan State Medical Association; aged 33; died, November 21, in the Providence Hospital, of pneumonia.

James Joseph Buckley ⊕ Dover, N. H.; Dartmouth Medical School, Hanover, 1900; on the staffs of the Hayes Hospital and the Wentworth Hospital; aged 53; died, November 4, of carcinoma of the bladder.

Edson Haskell Lutze, Brooklyn; New York Homeopathic Medical College and Flower Hospital, 1910; on the staff of the Prospect Heights Hospital; aged 57; died, December 7, of cerebral hemorrhage.

Morris Tipton, Columbus, Ohio; Medical College of Ohio, Cincinnati, 1883; formerly probate judge; on the staff of the State Hospital; aged 70; died, November 10, in Gallipolis, of cerebral hemorrhage.

William Sinclair McClinton, Midland, Ont., Canada; University of Toronto Faculty of Medicine, 1919; served during the World War; aged 35; was accidentally drowned, October 31, in Georgian Bay.

Marshall Collier McIntire, Farmer City, Ill.; Hahnemann Medical College and Hospital, Chicago, 1879; aged 72; died, November 20, of arteriosclerosis and obliterative endarteritis.

Robert Selmo Barton, New Philadelphia, Ohio; Columbus Medical College, 1884; member of the Ohio State Medical Association; aged 70; died, November 15, of angina pectoris.

Gustave Adolphus Petersdorf, Indianapolis; Medical College of Indiana, Indianapolis, 1898; aged 54; died, December 1, of acute dilatation of the heart and chronic myocarditis.

Edward G. Hedrick, Loraine, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; aged 66; died, November 24, in the Blessing Hospital, Quincy, of cerebral hemorrhage.

Bayliss McCuan Little ⊕ Clearfield, Iowa; Vanderbilt University School of Medicine, Nashville, Tenn., 1914; aged 40; died, October 27, of encephalitis and pneumonia.

Fred Schneider ⊕ New London, Wis.; Grossherzogliche Hessische Ludwigs Universität, Giessen, Hesse, Germany, 1876; aged 80; died, November 24, of bronchopneumonia.

Joseph D. Parr, Marietta, Ohio; Pulte Medical College, Homeopathic, Cincinnati, 1890; aged 70; died, October 30, in a hospital, at Detroit, of coronary thrombosis.

Eugene Chambers Kensinger, Athens, Tenn.; Memphis (Tenn.) Hospital Medical College, 1913; aged 44; died, November 27, following an operation for appendicitis.

Edwin Butler Shaw ⊕ Las Vegas, N. M.; Long Island College Hospital, Brooklyn, 1882; on the staff of the Carpenter Memorial Hospital; aged 72; died, July 13.

Harold Hartley Cauble, Kannapolis, N. C.; North Carolina Medical College, Charlotte, 1909; aged 46; died, November 20, in Salisbury, of heart disease.

Charles A. Stulik, Sr. ⊕ Chicago; Rush Medical College, Chicago, 1894; aged 70; died, October 6, of pulmonary embolism and carcinoma of the prostate.

William H. Ward ⊕ Plymouth, N. C.; University of Maryland School of Medicine, Baltimore, 1881; aged 73; died, November 9, of angina pectoris.

Nicholas F. Kelly Ake, Du Bois, Pa.; Medico-Chirurgical College of Philadelphia, 1897; aged 57; died, November 29, of bronchial asthma and influenza.

James Sidney Ames ⊕ Babylon, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1909; aged 48; died in November.

John E. Harner, Ephrata, Pa.; Homeopathic Hospital College, Cleveland, 1882; aged 78; died, November 18, in New Holland, of myocarditis.

Conley Mahlon Cowan ⊕ Bristol, Tenn.; Tennessee Medical College, Knoxville, 1902; aged 52; died, October 30, of cerebral hemorrhage.

Fred A. Cogswell, Leona, Kan.; State University of Iowa College of Medicine, Iowa City, 1889; aged 67; died, in October, in Wetmore.

Henry J. Hahn, Jr., Baltimore; University of Maryland School of Medicine, Baltimore, 1899; died suddenly, December 5, of heart disease.

William Harvey Zieber, Palo Alto, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1890; aged 68; died, November 19.

Thomas Rankin Wilson, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1904; aged 65; died, August 28.

Henry A. Simpson, Afton, Tenn.; Lincoln Memorial University Medical Department, 1911; aged 69; died, October 16.

Peter R. Bacot, Varnado, La.; University of Louisville (Ky) School of Medicine, 1893; aged 65; died, November 14.

Robert Scrimgeour ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1881; aged 88; died, November 17.

Leonidas Gardner Brock, Lytle, Ohio; Medical College of Ohio, Cincinnati, 1881; aged 80; died, November 14.

William Thomas Amyx, Lexington, Ky.; Louisville (Ky.) Medical College, 1894; aged 63; died, November 15.

Horace W. Elder, Bloomington, Ill.; Barnes Medical College, St. Louis, 1893; aged 70; died, in October.

Samuel W. Stone, Tazewell, Tenn. (licensed, Tennessee, 1889); aged 85; died, November 26.

Henry H. Cook, Detroit; Detroit College of Medicine, 1897; aged 55; died, December 1.

John A. Barnes, Louise, Miss. (licensed, Mississippi, 1882); aged 70; died, November 20.

Correspondence

THE DISCOVERY OF THE TRICHINA

To the Editor:—Recently (October 11) the *British Medical Journal* commented on the confusion concerning the historical record of the discovery of trichina. Even the recent edition of Osler's textbook failed, according to the editorial comment, to state correctly the facts regarding the original discovery of this important human parasite. The comment was entirely just and all the more inexplicable since numerous present-day textbooks on parasitology in English state the facts correctly.

Inadvertently the editorial writer himself slipped. The last sentence in the editorial reads:

> The life-history of the trichina was fully worked out by Herbst, Virchow, Zenker and Kühne, who completed a discovery made by a medical student of twenty-one years.

This statement omits entirely any reference to the most significant discovery among those of the many investigators who contributed to working out the life history. It was the demonstration of a similar encysted stage in the pig. For this the distinguished American physician and investigator Dr. Joseph Leidy of Philadelphia was responsible. The older authors overlooked the leading part he played in laying the foundations of parasitology, perhaps by virtue of his outstanding contributions in other fields. This oversight was adequately corrected by numerous addresses delivered on the occasion of the Leidy centenary in Philadelphia during September, 1923.

Leidy's part in the elucidation of the life history of trichina was one of his most significant contributions to research, giving the key to unlock the story of the life cycle of this parasite and at the same time furnishing the foundation for a simple and effective method for the prevention of the disease.

In 1846 Leidy recorded the discovery of minute encysted worms in the hog. He wrote that he "could perceive no distinction between it and specimens of *Trichina spiralis* which he had met with in several human subjects." This record is a striking illustration of the keenness with which an apparently trivial item acquired significance in his eyes; and if this interpretation of the relation between trichina in the hog and the occurrence of this parasite in man had been immediately accepted it would have hastened the general recognition of the responsibility of the pig for the transmission of the disease by at least a score of years.

The record was copied in England but the systematic parasitologist Diesing in Germany listed Leidy's find under the name *Trichina affinis* as a new species, throwing a mess of superficially studied and imperfectly described larval forms from a dozen hosts into the same species.

In 1896 Virchow told Leidy's nephew personally that he had had a lengthy correspondence with Leidy in 1849 and 1850 and that this correspondence on Leidy's discovery suggested to Leuckart and to himself the experiments which ultimately settled the life cycle of the parasite. In the meantime, Leidy's discovery as reported by Diesing under the new but erroneous designation was utilized to support false views of others that the encysted form in the pig was the larval stage of the adult trichuris in man.

Leidy did not lose interest in this problem, for in 1859 he exhibited to the Philadelphia Academy trichina in infested muscles from the human subject and stated that he had often met the parasite. In the following year he reported Leuckart's experiments and in 1866 in response to a question from a member of the academy stated simply but clearly that he was the first to discover the parasite in the hog. He related more fully the circumstances attending the discovery and in conclusion emphasized the freedom from danger of infection if meats were thoroughly cooked, "for he had satisfied himself by experiment that entozoa are destroyed when submitted to the temperature of boiling water."

Leidy was strongly averse to controversy and when urged by his friends to proclaim his part in the discovery and its importance he quietly replied, "The important thing is that the discovery or fact should be made known. It is of little consequence who made it." He preferred freedom from "disturbance of that peace of mind" which interfered so seriously with his researches.

American science owes much in a variety of fields to Leidy's devotion to real research and American medicine may well be proud of one of its members in a former generation who contributed so largely to the foundations of scientific research not only in parasitology but in a half a dozen other lines of investigation. In the particular case under discussion, his discovery was certainly fundamental and should be generally recognized.

Henry B. Ward,
University of Illinois
Department of Zoology,
Urbana, Ill.

AGRANULOCYTIC ANGINA

To the Editor:—The editorial writer who reviewed the subject of agranulocytic angina in The Journal, November 8, made one mistake. I believe the first case on record to be one that I reported in *American Medicine* (**3**:649 [April 19] 1902). As this case was studied pathologically and bacteriologically, it is certainly worth recording in connection with the history of this trouble.

To meet the question raised as to the distinction between this disease and aleukemic leukemia, I am going to send you shortly a review of both of these conditions as I have come across them recently.

Philip King Brown, M.D., San Francisco.

[Note.—Examination of the article by Dr. Brown, the title of which is "A Fatal Case of Acute Primary Infectious Pharyngitis, with Extreme Leukopenia," reveals that it does concern a case that now undoubtedly would be classed under agranulocytic angina. The case appears to be the first of its kind on record according to the information now at hand. Thanks are due him for calling attention to the failure by previous writers on agranulocytic angina to include his case in their discussions.—Ed.]

INTRODUCTION OF WORD "ANAPHYLAXIS"

To the Editor:—In an editorial in The Journal, October 18, discussing the establishment of the National Institute of Health, there is reference to the contributions that the Hygienic Laboratory of the Public Health Service (which forms the nucleus for the new expansion) has made to the betterment of human health. In the course of this recital, it is stated: "Early studies of anaphylaxis, a word which, by the way, was coined at the Hygienic Laboratory, brought the phenomenon of hypersusceptibility to the attention of research workers throughout the world." I had assumed that the term anaphylaxis was coined by Prof. Charles Richet of Paris, who was awarded one of the earliest Nobel prizes in medicine for this contribution. Am I in error?

M.D., Connecticut.

[Comment.—Our correspondent is correct, and the statement in The Journal was inadvertently erroneous. In "The Principles of Immunology" (Philadelphia, J. B. Lippincott Company, 1921), Karsner and Ecker state (p. 209) in reference to anaphylaxis: "Experimentally similar phenomena had been noted in the course of other studies as far back as Magendie in 1839, but it remained for Richet and Portier in 1902 to point out the fact that an animal may be rendered hypersusceptible to a poison by a previous injection of a small dose. . . . Because the phenomenon indicates a condition the opposite of prophylaxis they named it anaphylaxis." Again, in Jordan, E. O., and Falk, I. S.: The Newer Knowledge of Bacteriology and Immunology (University of Chicago Press, 1928) it is stated (page 969):

"The basic statement of the nature of anaphylaxis is given simply by the discoverer Richet (Richet, C.: L'Anaphylaxie, Paris, Alcan, 1923). . . . The term 'anaphylaxis' (ana, 'against'; phylax, 'guard') coined as a result of physiologic experiments, came into general use when the more strictly immunologic work of Arthus, Otto and Rosenau and Anderson gave the key to the mysterious ill effects that sometimes follow the use of horse serum in the treatment of diphtheria." Furthermore, in their Harvey Lecture, delivered, Dec. 5, 1908, Anderson and Rosenau (The Harvey Lectures, 1908-1909, Philadelphia, J. B. Lippincott Company, 1910), who were at that time associated with the Hygienic Laboratory, stated (page 117): "The word 'anaphylaxis' was introduced by Richet."—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SILICOSIS AND PNEUMONOCONIOSIS

To the Editor:—In Queries and Minor Notes (The Journal, August 30, p. 684) you state that "the silicate would ultimately load the lungs." The expression "load the lungs" would seem to imply the production of well marked pneumonoconiosis. This is produced, as I understand it, almost exclusively by free silica. With the exception perhaps of asbestos fiber, dust in general never loads the lungs and, in fact, causes relatively little damage of a serious nature. The work of Landis in Philadelphia substantiates this. Accordingly, I am wondering whether you have any basis for your statement that silicates are injurious.

Henry F. Stoll, M.D., Hartford, Conn.

Answer.—Silicates, as well as free silica, are definite sources of pneumonoconiosis. At an earlier time it was maintained that the hardness of the siliceous material, together with the acidulate qualities of the particles, played a considerable part in the causation of silicosis. This concept led to greater significance being attached to hard forms of silica rock, such as ganister and flint. At present, it seems necessary to abandon these theories and to attach greater significance to the chemical properties of siliceous materials as the source of harm.

Silicates, as well as free silica, are the sources of pneumonoconiotic diseases, although there may be some variation in the severity of the condition and in the length of time required for its production. In addition, some variation may exist in the pathologic condition produced. For example, asbestos, which is magnesium silicate, produces changes in the lungs somewhat unlike silicosis from granite. Roentgenologists, highly skilled in this particular field, are able to sort out, with reasonable accuracy, films of pneumonoconiotic lungs from asbestos and from free silica.

In this country the principal work on silicosis is that being carried out in The Tri-State Lead and Zinc Ore Districts of Missouri, Oklahoma and Kansas. This research work is jointly maintained by the United States Public Health Service and the Metropolitan Life Insurance Company. Reference is made to either of these agencies for more extensive information as to silicates as producers of pneumonoconiosis.

While it is granted that much remains to be proved in connection with silicosis and other dusty lung diseases, it does appear well established that silicates are sources of pathologic changes in the lungs, at least akin to the condition that is now termed "silicosis."

TOXICITY OF "CELLOSOLVE"

To the Editor:—A textile concern with which I am connected is using as a solvent for dyes a preparation known to the trade as "cellosolve." which chemically is ethylene glycol monoethyl ether. The boiling point is 134.8 C. I would appreciate any information you could give me concerning possible toxic effects, local or systemic, on workmen handling this preparation.

A. S. Jones, M.D., Shamokin, Pa

Answer.—The toxicity of "cellosolve" was discussed in *Public Health Reports*, June 27. The investigative work was largely limited to guinea-pigs, although two of the investigators breathed 0.6 per cent of cellosolve vapors for a few seconds only and reported some irritation to the eyes. The conclusions of the authors with reference to animals may be thus summarized:

1. The symptoms exhibited after from eighteen to twenty-four hours' exposure to air saturated with cellosolve vapor (0.6 per cent by volume) were inactivity, weakness, dyspnea and death. Exposure to 0.6 per cent for twenty-four hours caused death at the end of the exposure; 0.3 per cent for twenty-four hours caused death in twenty-four hours following exposure, and exposure to 0.6 per cent for ten hours, 0.3 and 0.1 for eighteen hours, caused occasional death in from one to eight days following exposure. Exposure to 0.6 per cent for one hour, 0.3 for four hours and 0.05 for fourteen hours did not cause any apparent harm.
2. The principal gross pathologic appearances were congestion and edema of the lungs; distention of the stomach, with numerous reddish-brown petechiae scattered over the mucous membrane, and congestion of the kidney. The contents of the stomach were also discolored reddish brown. All these occurred in the animals that died during or soon after exposure. Congestion and edema were the principal conditions in the animals that died twenty-four hours following exposure, and bronchopneumonia in the animals that died three days following.
3. Because of the comparatively low vapor pressure of cellosolve, it is not possible to create atmospheres at ordinary room temperatures that will produce serious acute poisoning in an hour.
4. Air saturated with cellosolve vapor at room temperatures produces a disagreeable odor and produces moderate eye irritation. If these properties are heeded as a warning of the occurrence of a potentially dangerous atmosphere, it is believed that acute poisoning will not occur."

The inference is that ethylene glycol monoethyl ether is definitely toxic for guinea-pigs and is presumably toxic for human beings, but that the physical conditions attending its use in industry do not readily lend themselves to circumstances likely to produce severe intoxication.

EPIGASTRIC PAIN

To the Editor:—An otherwise healthy man, aged 28, suffers from recurrent attacks of severe epigastric pain, accompanied by nausea and vomiting. The patient has a subnormal temperature during these attacks, which requires the use of morphine for alleviation. The attacks come on quite often while the patient is sleeping and last for several hours. There is some tenderness and rigidity over the epigastrium. A roentgen study, done about three years ago, did not reveal any pathologic changes. Last year a gastro-intestinal series revealed the presence of chronic appendicitis. Exploratory laparotomy was done and no other pathologic change was found. The appendix was removed. The patient still suffers from the attacks, although not so frequently. I have hazarded an impression that the pain is that of a gastralgia of anaphylactic causation. What is your opinion? Kindly omit name.

M.D., Michigan.

Answer.—A diaphragmatic hernia should be considered as a possibility. Such a herniation is more prone to occur in the recumbent position, and sufferers from such a hernia may prefer to sleep propped up in bed to prevent the attacks. It could be present and still not show in one or two roentgen examinations. Similar pain was experienced by a patient with sarcoma of the retroperitoneal glands, a growth so small that it could not be palpated. The history is of too long a duration for a tumor of the liver. Other unusual herniations of the upper part of the abdomen should be considered. The possibility of a reflex from pathologic changes above the diaphragm should be considered, as an adhesive pericarditis or a mediastinal disorder.

OCULAR MUSCLE IMBALANCE

To the Editor:—A patient, aged 50, is troubled with paretic hyperphoria affecting the right superior oblique muscle. It is evidently not of central origin but is most likely due to some structural anomaly of the muscle itself or is traumatic. Close application, such as reading or writing, causes a reflex disturbance of the heart manifested in a distressing heart consciousness and by a sense of oppression. This has lately led to frequent attacks of extrasystole which always follow prolonged close application, even with the proper correction for astigmatism and presbyopia and with the use of either both eyes or one eye. Prisms only make the matter worse. Two authorities whom I have consulted recommend covering the affected eye. In this case there happens to be a small retinal central scotoma, the result of having viewed a sun eclipse, which interferes with the procedure that has been advised. Is there an objection against the use of the affected eye alone instead of the sound eye in hyperphoria? If not, can you suggest a probable cause for the persistence of the cardiac strain following such use for close work. Please omit name.

M.D., New Jersey.

Answer.—There can be absolutely no objection to the use of an eye with a paralyzed muscle, provided the motion of that eye is not so limited as to interfere. There is a definite but not well understood relationship between the eye and the cardiac mechanism, of which the best known manifestation is the oculocardiac reflex. This is supposed to function by way of the sympathetics and the vagus, and it is easy to conceive of a similar reflex disturbance due to ocular muscle imbalance.

CONGENITAL HEMANGIOMA

To the Editor:—Will you please inform me what can be done for an infant, aged 3 months, who has a congenital hemangioma of the lip with similar angiomatous changes on the gums and even on the tongue. Can you please advise me to whom I can refer this patient for treatment in New York.

A. J. Reich, M.D., New York.

Answer.—The treatment of such extensive hemangiomas is rarely so satisfactory as it is in the smaller ones, which may be excised. Many times the white scar following the use of radium is fully as objectionable as the red or port wine mark. If one succeeds in destroying the blood vessels it may be possible by extensive plastic surgery to attain a passable cosmetic result. At times the condition is progressive and continues to involve more of the normal tissue. The increase in the size and number of the veins may cause an enlargement of the lip and cheek, giving them a hypertrophic appearance.

One may consider surgery or the introduction of radium seeds into some parts of the tumor with topical application of radium to the skin. Some excellent results in selected cases have been attained by the hypodermic injection of boiling water. There is, however, some danger of causing a slough.

HEKTOEN PHENOMENON

To the Editor:—Not long ago I was called to see a patient with pernicious vomiting and found her with a temperature of 103 F., heart rate 116 and a rough systolic murmur. Bromides and carbohydrates helped the morning nausea to some extent but less than usual, and the temperature was revealed as of septic type varying from 99.5 F. to 104 F. She was hospitalized and then I found that on two occasions she had a pure blood culture of streptococci and also a positive Widal reaction 1:60, although she had never had typhoid and had never had typhoid vaccine. I am able to explain this positive Widal only by suggesting that it represents what The Journal has recently described as the Hektoen phenomenon. As I had never heard of the Hektoen phenomenon, I would welcome your opinion. The patient, by the way, has recovered, is doing her housework and is going on with her pregnancy, which will be at term, Jan. 7, 1931. She still has her heart murmur, is free from fever, and has a blood pressure of 138/78, pulse 92 (allowance must be made for nervousness in this case), slight puffiness of the ankles in the evening and lately a dull soreness but no pain in the left arm. Do you think she could deliver normally (fifth child)? The passages are fully competent and she always has an easy and short delivery. Can you suggest any precautions that could be taken?

M.D., N. Y.

Answer.—When antigens, e. g., infectious agents, are introduced into the animal body in a so-called sensitized or allergic state, whether due to previous natural infection or to experimental procedures, there may exist a widened range of new antibody production, which may include production of antibodies concerned in previous infections or immunizations. It is possible that the patient may have had a typhoid infection that was not recognized and that the agglutination at 1:60 of typhoid bacilli was due primarily to that infection. As the agglutinin titer of the serum before the illness is not known, it cannot be known whether the agglutination was the result of a reawakening of agglutinin production by the stimulus of the infection. There is no apparent reason why, with careful ordinary precautions, the patient should not go on to term with normal termination.

SEXUAL EXHAUSTION AFTER EXCESS

To the Editor:—Will you kindly give me the following information concerning cases of sexual exhaustion after juvenile excess in young males? 1. Is thyroid extract of added help when combined with anterior pituitary lobe extracts? 2. Would you expect a child of such a father to be normal? 3. What would you suggest as a fitting length of time for treatment before discharging a patient as definitely incurable? 4. Would prolonged hypodermic injection of anterior pituitary lobe extract have a deleterious effect on the patient? 5. Would complete abstinence from sexual intercouse help such patients? 6. Is there a definite possibility of restoring the sexual power in such cases when a specimen, though small, contains actively motile spermatozoa? 7. What changes should be expected in such patients if they do not respond to treatment? 8. What literature treats this subject satisfactorily. - Please omit name and address.

M.D., New York.

Answer.—1. There is no evidence available to support the belief that thyroid extract enhances the stimulating effect of anterior pituitary lobe extracts.

2. There is no reason to expect any abnormality in a prospective child.

3. The period of treatment for any kind of impotence is always a prolonged one and no special term for the abandonment of treatment may be fixed.

4. As far as it is known, prolonged injections of anterior pituitary lobe extract do not show deleterious effects in male individuals.

5. Complete abstinence is imperative during treatment.

6. The presence of active spermatozoa is a favorable symptom.

7. Failure of therapeutic success does not produce any general constitutional symptoms.

8. The subject is thoroughly covered in Max Hühner's Practical Treatise on Disorders of the Sexual Function in the Male and Female, ed. 3, Philadelphia, F. A. Davis Company, 1929.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 12, 1931. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery, Ala.

Arizona: Phoenix, Jan. 6-7, 1931. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

Colorado. Denver, Jan. 6, 1931. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

Dist. Columbia: Regular, Jan. 12, 1931. Washington, D. C. Sec., Dr. W. C. Fowler, District Bldg., Washington, D. C.

Illinois: Chicago, Jan. 13-15, 1931. Supt., Mr. P. B. Johnson, Dept. of Registration and Education, Springfield, Ill.

Minnesota. Minneapolis, Jan. 6-7, 1931. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., Minneapolis, Minn. Regular, Minneapolis, Jan. 20-22, 1931. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., Minneapolis, Minn.

National Board: Parts I and II held in any class A medical school on Feb. 11-13, 1931. Part III given by subsidiary boards in eighteen cities, Jan. 12-14, 1931. Dir., Mr. Everett S. Elwood, 225 South 15th St., Philadelphia, Pa.

New York: Albany, New York City, Syracuse and Buffalo, Jan. 26-29, 1931. Chief, Mr. H. J. Hamilton, Albany, N. Y.

North Dakota: Grand Forks, Jan. 6-9, 1931. Sec., Dr. G. N. Williamson, Grand. Forks, N. D.

Oregon: Portland, Jan. 6-8, 1931. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland, Ore.

Pennsylvania: Philadelphia, Jan. 6-10, 1931. Sec., Mr. C. D. Koch, Harrisburg, Pa.

Rhode Island: Providence, Dec. 30-31, 1930. Dir., Mr. L. A. Round, Room 319 State Office Bldg., Providence, R. I.

South Dakota: Pierre, Jan. 20-21, 1931. Dir., Dr. H. R. Kenaston, Bonesteel, S. D.

Vermont: Burlington, Feb. 9, 1931. Sec., Dr. W. Scott Nay, Underhill, Vt.

Washington: Seattle, Basic Science, Jan. 8-9, 1931. Regular, Jan. 12-13, 1931. Dir., Mr. Charles Maybury, Olympia, Wash.

Wisconsin: Madison, Jan. 13-15, 1931. Sec., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

Wyoming: Cheyenne, Feb. 2, 1931. Sec., Dr. W. H. Hassed. Capitol Bldg., Cheyenne, Wyo.

South Carolina June Examination

Dr. A. Earl Boozer, secretary of the Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, June 24-26, 1930. The examination covered 17 subjects and included 75 questions. An average of 75 per cent was required to pass. Thirty-five candidates were examined and passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Medical College of the State of South Carolina		(1909)	77.4,
(1930) 80.6, 81.1, 82.5, 82.5, 83.4, 83.9, 84.9, 85, 85.4, 85.6, 85.9, 86.2, 86.6, 86.6, 86.9, 87, 87.4, 87.6, 88.2, 88.5, 88.6, 89, 89, 89.4, 89.7, 89.9, 90.2, 90.4, 91, 91.5, 92.			
Vanderbilt University School of Medicine		(1930)	92.1
Medical College of Virginia		(1930)	88.6
Osteopaths			81.4

Dr. Boozer also reports 4 physicians licensed through reciprocity with other states at the same meeting. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University School of Medicine		(1925)	Georgia
University of Georgia Medical Department		(1927) (1928)	Georgia
University of Maryland School of Medicine		(1911)	Georgia

Hawaii July Examination

Dr. James A. Morgan, secretary of the Board of Medical Examiners of Hawaii, reports the written examination held at Honolulu, July 14-17, 1930. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Three candidates were examined and passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Rush Medical College		(1930)	85.1
Boston University School of Medicine		(1929)	87.7
Western Reserve University School of Medicine		(1918)	86.9

Book Notices

Handbook of Pediatric Procedures. By Francis Scott Smyth, M.A., M.D., Pediatrician-in-Chief, University of California Hospital, and Edith I. M. Irvine-Jones, M.B., Ch.B., Assistant Physician, St. Louis Children's Hospital. Cloth. Price, $2.50. Pp. 212. New York: Macmillan Company, 1930.

This small but concise volume contains brief descriptions in outline and didactic form of the various methods emphasized in routine pediatric procedures. The authors have divided the book into two main sections, the first dealing with diagnosis and the second with therapy. After a detailed scheme for a complete history and physical examination is given, the common laboratory examinations of the blood, stool and urine are detailed. Then follow outline enumerations of the more special laboratory procedures, references being included to the original descriptions of the tests in the literature. The second part of the volume, dealing with therapy, considers first dietetic procedures. In measuring the quantities of various substances used in infant formulas, the metric system is followed. In the diets for children aged 1 year and over which follow, ounces and kilograms are quite freely mixed. In a practical book of this type it would be better to accept and employ throughout the more commonly used avoirdupois system. Under biologic therapy the authors state that the final reading in the Schick test should be made after forty-eight hours. It is generally accepted that this final reading be made ninety-six hours after the test was performed. The methods given for smallpox vaccination are the multiple puncture and the intradermal methods. No mention is made of the scratch method, which is undoubtedly by usage and general acceptance the standard method for vaccination. Under drug therapy, a table for dosage of the most common drugs at various ages is given. The dosage for codeine, one-eighth grain at 6 months; from one-fourth to one-half grain at 2 to 5 years, is dangerously high. The same is true of the dosage for thyroid, 1 grain at 6 months and from 2 to 4 grains at 3 to 5 years. In describing the therapy of acute and subacute pyelitis, the authors recommend hexamethylenamine, 4 grains three times daily, for a child of 5 years. This dosage is high and might produce hematuria. This book contains a vast amount of valuable material in concise form and should prove a handy reference for both the student and the practitioner.

Untersuchungen über das periphere Nervensystem. Serie A. Heft 1: Die Injektion des Nervensystems. Arbeiten aus der dritten Abteilung des anatomischen Institutes der Kaiserlichen Universitat Kyoto. Herausgegeben von Prof. Dr. Seigo Funaoka, Vorstand der Abteilung. Paper. Various pagination. Kyoto: Anatomical Institute of Kyoto Imperial University, 1930.

Funaoka and his collaborators successfully inject peripheral nerves with fluids which are not soluble in water (benzene, chloroform, toluene, aniline, liquid petrolatum, olive oil), and which can be colored. Funaoka prefers a colored oil, ultramarine, dissolved in decalene, benzene or a similar chemical (carbohydrate) substance. Injected into a peripheral nerve, sciatic or peroneal, for instance, with an ordinary glass syringe, the fluids spread easily through the length of the nerve, from which they extend into the central nervous system. On microscopic examination a dyed mass is found not only in the epineurium and perineurium—the connective tissue membranes of the peripheral nerves—but also in the subarachnoid and subdural spaces of the brain. On intradural injection of lampblack suspended in machine oil, coal particles are found within the cerebral ventricles and at the base of the brain. When the sediments of lampblack are especially abundant around the medulla oblongata, an internal hydrocephalus is inevitably produced. By injecting a 0.2 per cent solution of cocaine or procaine hydrochloride, also suspended in machine oil, it was possible to obtain analgesia of the opposite extremity, while injection of the nervus mentalis resulted in an anesthesia, of forty minutes' duration, of the whole area innervated by the trigeminal nerve. Other experiments convinced the Japanese investigators that the entire central nervous system may be injected from the peripheral nerves. The nerves themselves when injected with colored fluids could be traced to their finest ramifications and, when such fluids as methyliodide and ethyliodide were used, it was possible to obtain roentgenograms of the injected nerve. It was also possible to prove that caffeine, strychnine and picrotoxin injected into the peripheral nerves exert a direct physiologic action on the central nervous system, similar to the one exerted by the drugs when injected intravenously or subcutaneously. These few instances may give an idea of the originality and importance of the work done by Funaoka and his collaborators. One may say that it solved definitely, among other problems, the one pertaining to a communication between the cerebrospinal spaces—subarachnoid and subdural—and the perineural tissue spaces, a view long ago advocated by Key and Retzius. Also the experiments with the production of hydrocephalus are of great value, for they prove that the blocking of the area around the medulla is a necessary factor in the causation of this condition. The issue consists of twelve contributions with excellent photographs, one beautiful colored picture and a rich bibliography.

J. George Adami, Vice-Chancellor of the University of Liverpool 1919-1926, Sometime Strathcona Professor of Pathology McGill University, Montreal: A Memoir. By Marie Adami, together with contributions from others, his friends. And an introduction by Sir Humphry Rolleston, G.C.V.O., K.C.B., M.D. Cloth. Price, $3.50. Pp. 179. New York: Richard R. Smith, Inc., 1930.

Professor Adami taught at McGill University for more than twenty years. He contributed greatly to the literature of his subject. He realized the important part that pathology must play in the growth and the application of medical science, and toward the end of his life he edited "The War Story of the Canadian Army Medical Corps." He was unanimously elected vice chancellor of the University of Liverpool in June, 1919, and he carried on his work in this field until his death in 1926. The memoir is presented chronologically in relationship to the cities and the educational institutions with which he was associated. It includes also a list of his publications and estimates, by his colleagues, of his work. Pathologists, and all of those whose lives brought them into relationship with this distinguished man, will surely find in the volume much of interest.

Handbook of the Vaccine Treatment of Chronic Rheumatic Diseases. By H. Warren Crowe, D.M., B.Ch., M.R.C.S., Director of the Charterhouse Rheumatism Clinic. Paper. Price, 80 cents. Pp. 52. New York: Oxford University Press, 1930.

The author assumes that all rheumatic diseases are bacterial in origin. He recognizes three types: fibrositis, osteoarthritis and rheumatoid arthritis. From the standpoint of treatment he considers a differential diagnosis of no especial importance, as the same treatment is given to the various forms. Streptococci derived from the intestinal tract are responsible for fibrositis and osteoarthritis, and a white staphylococcus, which he designates *Micrococcus deformans*, the etiologic factor in rheumatoid arthritis. In the light of blood culture by Cecil and joint culture by Shand in rheumatoid arthritis showing *Streptococcus viridans*, and the negative blood culture obtained in osteoarthritis, it would appear that the author is somewhat confused in his statement. A vaccine is made from each of these germs and given separately to all rheumatic patients. He ascribes his good results to the use of small doses given subcutaneously. The initial dose is from 50,000 to 100,000 killed organisms. The treatments are given daily. The indications for modifying the dosage for the subsequent injection savors of magic rather than of science. He stresses the importance of avoiding a general reaction. The streptococcal vaccine contains 155 strains, "containing all varieties found in chronic rheumatism." The source of these various strains is not clear, but presumably it is the intestinal tract. The treatment in some cases is continued for years. He admits that there is a marked tendency in his cured cases to relapse. The fact that rheumatoid arthritis is characterized by remissions and recurrences may account for some of his apparent cures. This book cannot be recommended. While knowledge of chronic arthritis is limited, some things apparently are fairly clear, and many of the statements made in this treatise indicate that the author has not kept in touch with the literature on this subject. One must, however, admire his faith in his treatment as shown by the last sentence of his book: "I have not the slightest hesitation in saying that the only universally successful treatment for rheumatism is by vaccine, and that if this method were generally adopted, the industrial problem, which is now engaging the attention of almost the whole world, would soon be satisfactorily and completely solved."

Die Hypertoniekrankheiten. Von Dr. Eskil Kylin, Direktor der inneren Abteilung des Allgemeinen Krankenhauses zu Jönköping. Second edition. Paper. Price, 22 marks. Pp. 270, with 28 illustrations. Berlin: Julius Springer, 1930.

This is an extensive monograph dealing with various hypertensive states. All the factors dealing with normal and abnormal hypertension are considered in a clear and orderly fashion. The author quotes extensively from the literature and gives his own opinion, which may or may not agree with other opinions. The method of taking blood pressure, the factors influencing the normal reading, physiologic variations dependent on age, posture, time of day and the taking of food, the changes due to physical and psychogenic stimuli, and the rôle of the blood vessels and heart, are carefully covered in two sections. The author believes that a chemical study of the blood should be included in examination of hypertensive diseases. Exogenous factors are almost as important as the endogenous factors in elevation of blood pressure. The endocrine glands probably have some influence in elevating blood pressure, but just how much is not definitely known. Heredity is of course important. Essential hypertension is the result of functional disturbances in the blood vessels and leads to contracted kidneys. The author states that all attempts at ascribing hypertension to disease of the kidneys have met with poor results. Experimental work has not yielded as much as hoped for. Because of the association of hypertension with certain forms of acute nephritis and all chronic forms, the author devotes considerable space to a discussion of renal lesions, especially those complicated with arteriolar and capillary changes. The subjects of diagnosis and treatment are covered fairly well. This book should be of especial interest to one who is making a study of hypertension.

The Biological Basis of Human Nature. By H. S. Jennings, Henry Walters Professor of Zoology and Director of the Zoological Laboratory in the Johns Hopkins University. Cloth. Price, $4. Pp. 377, with 51 illustrations. New York: W. W. Norton & Company, Inc., 1930.

The introductory portion, which is about half of the book, consists of a presentation of the laws of heredity as determined by genetics, explaining both the mendelian theory of inheritance and the inheritance of characteristics governed by the x-chromosome. Professor Jennings points out that behaviorists and eugenicists are equally in error; that heredity and environment both are needed to explain the mutations to which species are subject. His speculations as to the method, the desirability and the results of controlled inheritances in controlled environments, and other effects on the individual and on society, are amazingly interesting.

Die Knochen- und Gelenktuberkulose: Kurze Darstellung der Pathogenese, der allgemeinen Diagnostik und der Behandlung. Von Dr. Rudolf Nissen, Privatdozent f. Chirurgie, Oberarzt der chirurgischen Universitatsklinik der Charité, Berlin, und Dr. Paul Meyer-Ruegg, Assistent der chirurgischen Universitätsklinik, Zurich. Tuberkulose-Bibliothek, Beihefte zur Zeitschrift für Tuberkulose, Nr. 36. Herausgegeben von Prof. Dr. Lydia Rabinowitsch. Paper. Price, 7 marks. Pp. 54, with 30 illustrations. Leipzig: Johann Ambrosius Barth, 1930.

This treatise covers in a concise manner the origin, pathology and course of bone and joint tuberculosis. Treatment and diagnosis are also given due attention. The work is well adapted to the needs of the student and practitioner because of the terse style and clearness of expression. The authors quote freely from other writers, giving full credit in the appended index.

Dosage Tables for Rontgen Therapy. By Professor Friedrich Voltz, Head of the Radiological Department, University Clinic for Women, Munich. Translated from the second German edition. Cloth. Price, $2.50. Pp. 120, with 21 illustrations. New York: Oxford University Press, 1930.

This valuable and thorough work is quite technical in description but at the same time is arranged in such a manner as to be readily understandable. The arrangement of the table dosages makes a handy reference. The description of the manner of obtaining these dosages indicates exhaustive work by the author. The book should be of great aid in accomplishing the desired result in roentgen therapy.

Miscellany

THE SMALLPOX EPIDEMIC AMONG THE MANDAN INDIANS IN 1837

WILLIAM ALLEN PUSEY, M.D.
Chicago

In the Mississippi Valley Historical Review, September, 1930, Dr. M. M. Quaife, the eminent historian of the Northwest, has printed the part of the journal of Francis Chardon in which is included Chardon's record of the epidemic of smallpox among the Mandans and other Indians of the upper Missouri River in 1837. The journal is a striking narrative of the hardships and dangers endured by those pioneers of the West, the fur traders, and of the resourcefulness and courage that were required to meet them. It is a brief document, which would be in its entirety interesting to any one; but the peculiar interest for the physician, of course, lies in the vivid impression that the entries in the journal concerning the smallpox give of the ravages of an unfettered smallpox epidemic among a primitive people. It is a picture merely in outline, but in bold vigorous outline, of the stark, hopeless terror of a people in the presence of a hideous disease against which they were helpless. Chardon and the few other whites who were involved in the situation naturally denied that they had anything to do with the introduction of the disease, but the Indians forced this charge on them and, as Quaife says, "They were correct in this belief; the steamboat *St. Peters*, whose arrival at Fort Clark on June 28, on the return voyage from Fort Union, as noted by Chardon, introduced the epidemic to the Indians."

The epidemic has been mentioned, according to Quaife, in numerous journals. One of the descriptions is by Audubon, but Audubon's description is taken from this same Francis Chardon. Chardon's journal is preserved in the Manuscript Division of the Library of Congress.

Chardon was a fur trader in the upper Missouri region for at least twenty years preceding 1848, when he died. There is other evidence besides his journal to indicate the excellent quality of the man. He was in charge of the fur post, Fort Clark, 55 miles above the present-day Bismarck, North Dakota, on the Missouri River, where his only communication with civilization was the annual boat from St. Louis. Chardon's journal throughout indicates the painstaking care on his part. At the beginning of each month he set down the month and, after it, the number of days in it, as, for example, "June 30 days." At the end of the month there is always the entry showing the number of rats killed. Thus, at the end of the notes, on Monday, the 31st, is the entry "killed 61 rats this month—total 1,778." He was a careful recorder, whose entries are to be respected. The diary was written at Fort Clark and parts of it, from which the selections are reprinted, were dated in July, August and September, 1837.

As Quaife says, "The Mandan tribe, like the army of Sennacherib, was practically blotted out, and the sufferers on the upper Missouri knew as little of the nature of their affliction as did the ancient Assyrians."

The account begins with Chardon's entry, "Wednesday, 28 (June). The S. B. [steamboat *St. Peters*] arrived from above at 6 a. m.—and started 7 a. m.—The agent distributed out the few presents to the Rees and gave them a few words of good talk, and departed." From here on, I have selected only references in the journal that have to do with the smallpox.

"(July) Friday 14. A Young Mandan died today of the Small Pox—several others has caught it.

"Monday, 17. An other Case of small pox broke Out to-day at the Village.

"Tuesday, 25. Several young Men Arrived from the dried Meat Camp. . . . They say that the small pox has broke out at the Camp [the meat camp.]

"Thursday, 27. The small pox is Killing them off at the Village, four died to day.

"Friday, 28. The Mandans and Rees gave us two splendid dances, they say they dance, on account of their Not haveing a long time to live, as they expect to all die of the Small Pox.

"Sunday, 30. An other report from the GrosVentres to day say, they are Arrived, at their Village, and that 10 or 15 of them have died, they threaten Death and Distruction to us all at this Place, saying that I was the Cause of the small pox Makeing its appearance in this Country—One of Our best friends of the Village (The Four Bears) died today, regretted by all Who Knew him.

"(August) Saturday, 5th. News from GrosVentres. . . . a Great Many of them have died of the Small Pox—several Chiefs Among them, they swear vengeance against all the Whites, as they say the small Pox Was brought here by the S. B.

"(August) Monday 7. Six more died to day.

"Tuesday 8. Four more died to day—the two thirds of the Village are sick. . . . The small Pox has broke Out at the Little Mandan Village, three died yesterday, two chiefs.

"Wednesday 9. Seven more died to day.

"Thursday 10. All the Rees that were encamped in the Mandan lodges, except a few that are sick, Moved down to the Island hoping to get rid of the small Pox.

"Friday 11. Mandans all crossed to the other Side of the river to encamp—leaving all that were sick in the village, I Keep No A/c of the dead, as they die so fast it is impossible—

"Sunday 13. An Old fellow who has lost the whole of his family to the Number of 14, harrangued today, that it was time to begin to Kill the Whites.

"Monday 14. The Wolf chief An other dog from the Little Village, came to the Fort Naked With his gun cocked, to Kill one of us, We stopped him.

"Tuesday 15. . . . it appears that the small Pox has broke Out Amongst the Sioux, As Some of the Party, on their way back Was taken sick at Grande River, having Caught the disease from those that they butchered.

"Wednesday 16. Several Men, Women, and children that has been abandoned in the Village Are laying dead in the lodges, some Out side of the Village, others in the little river Not entered, which Creates a Very bad Smell all Around us—A Ree that has lost his wife and child threatened us to day—We are beset by enemies on all sides expecting to be shot every minute.

"Thursday 17. The Indians lying off every day—W[h]ere the disease will stop, I Know Not—A Young Ree for several days has been lurking around the Fort, Watching a good opportunity to Kill Me, but not finding a good chance, this morning he Came, full intent, he sit himself down in front of the Fort gate, on the Press, and Waited a few Minutes for me to go Out, in the Mean time one of My Men a Dutchman, John Cliner—stepped out and sat himself down a long side of the Indian, after setting a few Minutes, he got up to Come in the Fort, he only Made five paces When the Indian shot him in the back bone and Killed him instantaniously, he Made Off Immediately—We pursued him after shooting at him, but Without effect—got as far as the little river, . . . on Arriveing there he Made a stop, and hollowed to us that, that was the place he wanted to die. Garreau *Cesar* like approached in 15 paces of him and shot, the contents knocked him Over. . . . The Mother of the fellow We Killed Came to the Fort crying, saying that she wanted to die also, and wished for us to Kill her. Garreau stepped up, and With his tommahawk would have Made short of the Old Woman, but was prevented.

"Saturday 19. A Mandan And his Wife Killed themselves yesterday, to Not Out live their relations that are dead. . . . I was in hopes that the disease was almost at an end, but they are dying off 8 and 10 every day—and new cases of it daily—W[h]ere it will stop *God* only Knows—

"Sunday 20. Three more died in the Village last Night. The Wife of a Young Mandan that caught the disease Was suffering from the pain, her husband looked at her, and held down his head, he jumped up, and said to his wife, When you Was Young, you were hansome, you are now ugly and going to leave me, but No, I will go With you, he took up his gun and shot her dead, And With his Knife ripped open his Own belly—two young men (Rees) Killed themselves to day, one of them stabbed himself With a Knife, and the other with an arrow. . . . A young Ree that has been sick for some time with the small pox, and being alone in his lodge, thought that it was better to die, than to be in so much pain, he began to rub the scabs untill blood Was running all over his body—he rolled himself in the Ashes, Which almost burnt his soul Out of his body—two days after he was perfectly Well, it is a severe operration, but few are disposed to try it—however it proved beneficial to him—

"Monday 21. . . . An Indian Came and told Me to be on My guard—as the fellow above mentioned, is determined to Act as his brother, to Kill One of us, And then die, . . . May he change his notion is the wish of your Humble Servant.

"Tuesday 22. The disease still Keeps ahead 8 and 10 die off daily, thirty five Mandans (Men) have died, the Woman and Children I keep No Account of.

"Thursday 24. Seven More died at the Village last Night, and Many More at the Ree camp at the point of Woods below. The fellow that we Killed on the 17th all his band Came to day to smoke With us and Make Peace, how long it will last I Cannot tell, however We Must put up With it, good or bad—

"Friday, 25. An other Mandan chief died to day—(The Long Fingers) total Number of Men that has died—50, I have turned Out to be a first rate doctor St Grado, an Indian that has been bleeding at the Nose all day, I gave him a decoction of all sorts of ingredients Mixed together, enough to Kill a Buffaloe Bull of the largest size—I done it out of experiment And Am Content to say, that it proved effectual, the Confidence that an Indian has in the Medicine of the whites, is half the Cure.

"Saturday 26. A young Ree that has the Small Pox, told his Mother to go and dig his grave, she accordingly did so—after the grave Was dug, he walked With the help of his Father to the Grave, I Went Out With the Interpreter to try to persuade him to return back to the village—but he would not, Saying for the reason that all his young friends Were gone, And that he wished to follow them, towards evening he died—

"Monday 28. Three More fell sick in the Fort to day—My Interpreter for one, if I loose him I shall be badly off, the bad Weather continued all day—and no Prospects of Clearing off—

"Tuesday 29. An Indian Vacinated his child, by Cutting two small pieces of flesh Out of her Arms, and two on the belly—and then takeing a Scab from One, that Was getting Well of the disease, and rubbing it on the Wounded part, three days after, it took effect, and the child is perfectly Well—

"Thursday 31. A Young Mandan that died 4 days ago, his Wife haveing the disease also Killed her two Children, one a fine Boy of eight years, and the other six, to complete the affair she hung herself.

"Month of August I bid you farewell With all My heart, after running twenty hair breadth escapes, threatened every instant to be all Murdered, however it is the Wish of [your] humble Servant that the Month of September Will be More Favorable, the Number of Deaths up to the present is Very Near five hundred. The Mandans are all Cut off except 23 young and Old Men.

"(September) Sunday 3. A Young Mandan came to pay us a Visit from the Little Village, he informes us, that they are all Most all used up, and that it is his opinion that before the disease stops, that there will not One be left, except 8 or 10 that has Weathered out the Sickness—

"Tuesday 19. I was Visited by a Young fellow from the little Village, he assures Me that there is but 14 of them liveing, the Number of deaths Cannot be less than 800—What a bande of rascals has been used up—

"Thursday 21. The Mandans fearing their Allies, the Rees should unite With the Sioux, have all fled to the Opposite Side of the river, what their intention is I know Not, but the few that are left (41), Are Miserable, surrounded on all Sides."

The miserable wretches for the most part were voiceless and could only indicate their abject wretchedness and hopelessness by committing atrocities on themselves and their people. But they had one spokesman, 4 Bears—a chief to whose good character Chardon gives testimony in this diary—who was able to describe the calamity in words that enable us to realize the awful anguish of the Indians. Of this, Dr. Quaife, in a personal communication, says, "I should like also to call your attention to the speech of 4 Bears, printed on page 299. It seems to me an unusual example of Indian eloquence." It is recorded at the end of Chardon's journal.

"SPEECH OF THE 4 BEARS, A MANDAN WARRIOR, TO THE ARRICAREES AND MANDAN—30TH JULY, 1837

"My Friends one And all, Listen to what I have to say—Ever since I Can remember, I have loved the Whites, I have lived With them ever since I was a Boy, and to the best of My Knowledge, I have Never Wronged a White Man, on the Contrary, I have always Proctected them from the insults of others, Which they Cannot deny, The 4 Bears Never saw a White Man hungry, but that he gave him to eat, Drink, and a Buffaloe skin to sleep on, in time of Need, I was always ready to die for them, Which they Cannot deny, I have done everything that a red Skin could do for them, And how have they repaid it! With Ingratitude! I have Never Called a White Man a Dog, but to day I do Pronounce them to be a set of Black harted Dogs, they have deceived Me, them that I Always Considered as Brothers, has turned Out to be My Worst enemies, I have been in Many Battles, and often wounded, but the Wounds of My enemies, I exhalt in, but to day I am Wounded, And by Whom, by those same White Dogs that I have Always Considered, and Treated as Brothers, I do Not fear Death My friends, You Know it, but to *die* With My face rotten, that even the Wolves will shrink With horror at seeing Me, And say to themselves, that is the 4 Bears the 4 Bears the Friend of the Whites—Listen well what I have to say, as it will be the last time you will hear from Me, think of your Wives, children, Brother, Sisters, Friends, and in fact all that you hold dear, are all Dead, or Dying, with their faces rotten, caused by those dogs the whites, think of all that My friends, and rise all together and Not leave one of them Alive, The 4 Bears Will act his part."

To find as poignant a description of overwhelming grief as this, one must go to the Greek tragedies.

Medicolegal

Sale of Drugs by Itinerant Vender Prohibited

(J. R. Watkins Co. v. Brown et al. (La.); 126 So. 587)

Section 12 of the medical practice act of Louisiana, provides as follows:

> That any itinerant vendor of any drug, nostrum, ointment or application of any kind, intended for the treatment of disease or injury, or who may by writing, print, or other methods, profess to cure or treat disease or deformity by any drug, nostrum, manipulation, or other expedient in this state, shall, if found guilty, be fined . . . or shall be imprisoned . . .

The J. R. Watkins Company entered into a contract with one Robert Lee Brown, one of the defendants in this case, to sell to Brown certain drugs, or medicines, on the condition, among others, that he make at least four times a year "a thorough and personal canvass" of the territory assigned to him for the purpose of selling these medicines. Brown was unable to fulfil the terms of the contract and suit was instituted against him, and his sureties, by the Watkins Company. The lower court gave judgment for Brown, apparently on the ground that the contract was illegal as proposing the itinerant vending of drugs in contravention of the section quoted, and the Watkins Company appealed to the Court of Appeals of Louisiana, First Circuit.

The object of the medical practice act, said the court, was to regulate the practice of medicine by competent physicians or surgeons and to prevent its practice by unauthorized or incompetent persons. The attempt made in section 12 to suppress itinerant venders of drugs was obviously incorporated in the statute for the prevention of the practice of medicine by quacks and mountebanks and such incorporation does not render the act unconstitutional. Counsel for the company contended that there was no penalty imposed for the mere *vending* of drugs, ointments and nostrums. The contention was that the only offense denounced is professing to prescribe for or treat. The section, said the court, denounces the vending of drugs or nostrums by itinerant venders as a crime. It also provides against the professing, by printing or writing, to cure disease or deformity by manipulation or other expedient. The penalty is prescribed against the offender who violates the provisions of the section in either of the ways stated. The words "profess to cure," continued the court, apply also to the mere vending of the drugs, since no sales of the nostrums would be possible unless the purchaser was promised a cure. Of necessity, such an affirmance by the itinerant vender must be implied in every sale. The word "profess," taken in its general sense, means "to acknowledge" "to avow," "to affirm." Every sale must necessarily carry an "avowal" or "affirmance" of the curative virtues of the nostrum. While section 12 of the act is not perfect in point of diction or grammatical construction, the court said, the foregoing construction carries out the legislative purpose, which was to prevent the practice of medicine by the unqualified and the unauthorized.

The Watkins Company contended, finally, that the section in question interfered with interstate commerce and was therefore void. This section, the court said, was enacted for the protection of the public health of the state as a police regulation and is not subject to the objection made.

The appellate court could find no error in the record and the judgment of the trial court was affirmed.

Refusal to Accept Treatment in Compensation Case

(Hudyck v. Wyoming Shovel Works (Pa.), 149 Atl. 312)

Hudyck, while an employee of the defendant company in 1917, lost the sight of his left eye in an industrial accident and was awarded compensation for partial disability. He returned to work for the defendant company and so continued until 1925, when he lost the sight of his right eye, as a result of sympathetic infection developed from the eye first injured. He then petitioned the compensation board to review and modify the compensation awarded him in 1917. The referee to whom the petition was referred awarded him compensation for total disability. The compensation board upheld the award and its action was affirmed by the court of common pleas, Luzerne County. The employer and its insurance company thereupon appealed to the Supreme Court of Pennsylvania, contending that no additional compensation should have been awarded by the referee. They alleged, among other things, that the employee failed to follow the advice of his physician, in 1917, to have the left eyeball removed to prevent infection of the other eye and that that failure created "the equivalent of a refusal to neglect to accept reasonable medical treatment" and resulted in a forfeiture of compensation under section 306(e) of the workmen's compensation act.

Section 306(e) does not apply to this particular situation, said the Supreme Court. A forfeiture of compensation can follow only, in the words of the act, "if the employee shall refuse reasonable surgical, medical, and hospital services, medicines and supplies, tendered to him by his employer." The record does not disclose tenders of that nature by the employer, and the physician who attended the employee was not provided or secured by the employer. The physician whom the employee consulted in 1917, and who testified at the hearing before the referee, recommended the removal of the blind eye; but, as the evidence discloses and the referee found, it does not appear that the employee was made to understand that failure to remove the eye would result in loss of sight in the other eye.

The judgment of the court below was accordingly affirmed.

Society Proceedings

COMING MEETINGS

American Orthopsychiatric Association, New York, February 20-21. Dr. George S. Stevenson, 370 Seventh Ave., New York, Secretary.

American Society for the Study of Disorders of Speech, Chicago, December 30-January 1. Dr. Sara M. Stinchfield, Mount Holyoke College, South Hadley, Mass., Secretary.

American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.

American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.

Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. *Requests for issues of earlier date cannot be filled.* Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

40: 941-1162 (Nov.) 1930

*Effect of Phosphorus in Rickets. E. L. Compere, Chicago.—p. 941.
*Diphtheria of Umbilicus: Case. J. C. Montgomery, Detroit.—p. 968.
Enlargement of Thyroid Gland in Children. A. Topper and H. Mulier, New York.—p. 974.
*Immunity: III. Effect of Diseases Other Than Diphtheria on Schick Test. B. Eddy and A. G. Mitchell, Cincinnati.—p. 985.
Id.: IV. Effect of Diseases Other Than Scarlet Fever on Dick Test. B. Eddy and A. G. Mitchell, Cincinnati.—p. 988.
*Milk Sugar in Infant Feeding. B. W. Jarvis, New York.—p. 993.
Mental and Physical Development of Children Prematurely Born. G. J. Mohr and P. Bartelme, Chicago.—p. 1000.
Carbon Dioxide Absorption Curve of Infants Fed Lactic Acid, Hydrochloric Acid and Boiled Cow's Milk. D. C. Darrow, New Haven, Conn.—p. 1016.
Development of Scarlet Fever Rash and of Positive Skin Reaction. T. Toyoda and Y. Futagi, Dairen, Manchuria.—p. 1024.
Effect of Tonsillectomy and Adenoidectomy on Diphtheria Immunity. K. B. Geddie, Rochester, Minn.—p. 1032.
Rapidity of Immunization with Diphtheria Toxoid. M. Cooperstock, Ann Arbor, Mich., and G. F. Weinfeld, Ravinia, Ill.—p. 1035.
Bile Salt Hemolysis in New-Born Infants and Inhibition by Blood Serum. H. N. Sanford, M. M. Crane and E. I. Leslie, Chicago.—p. 1039.
Lateral Sinus Thrombosis Complicating Masked Mastoiditis: Case with Secondary Subarachnoid Hemorrhage. I. J. Klein and M. Lederer, New York.—p. 1045.
Massive Suprarenal Hemorrhage in New-Born Infant: Four Cases. D. P. Arnold, Buffalo.—p. 1053.
Thrombosis of Dura Mater Sinuses from Jugular Endophlebitis. A. Hymanson, New York.—p. 1058.
Acute Hemolytic Anemia in Childhood. S. D. Lazarus, New York.—p. 1063.
Early Case of Pyloric Stenosis. E. Caulfield, Hartford, Conn.—p. 1069.
Behavior Problems of Children: Delinquency. I. S. Wile, New York.—p. 1076.
George Armstrong. J. Ruhräh, Baltimore.—p. 1094.

Effect of Phosphorus in Rickets.—In the studies made by Compere, phosphorus alone was not sufficient medication to bring about healing in severe cases of infantile rickets in which there had been no initial stimulation from ultraviolet rays or from cod liver oil. Cod liver oil administered alone to infants with severe rickets, in a dosage of from 3 to 6 teaspoonfuls daily, brought about healing in most of the cases, although in two cases rickets had developed in spite of daily doses of cod liver oil for periods of several months. Phosphorus administered in cases in which cod liver oil had been given and in which its administration was continued and other conditions, such as diet and home hygiene, remained the same, brought about prompt healing of the rickets, and increased calcification of the shafts of the bones. When patients had received elementary phosphorus in the form of one-hundredth grain, or 0.6 mg., pills (two such pills each day) for several months without improvement in the roentgenographic appearance of the bones, the healing response to the addition of cod liver oil was slow and the cure of the rickets sometimes delayed for several months, although in every case so studied healing eventually occurred. The combination of cod liver oil and of phosphorus administered to patients with rickets who had not received previous antirachitic treatment, even though this therapy was begun in the late fall or winter months when the incidence of rickets is known to be high, brought about prompt healing with marked calcification and increased density of all the bones studied by means of the roentgen rays. The combination of cod liver oil and phosphorus produced more prompt and more certain healing of rickets than did cod liver oil alone.

Diphtheria of Umbilicus.—The case of an infant with umbilical diphtheria complicated by postdiphtheritic paralysis and myocarditis is reported by Montgomery, with complete bacteriologic and pathologic observations and a brief review of the literature. It has been impossible to discover in the literature another case of diphtheria limited solely to the umbilicus in which there were myocardial or neurologic complications.

Effect of Diseases Other Than Diphtheria on Schick Test.—A study made by Eddy and Mitchell in 358 cases of measles, scarlet fever, poliomyelitis, varicella and pertussis showed that these diseases do not affect the Schick test; that is, there is no difference between the skin reaction to diphtheria toxin during the acute febrile and the convalescent stages.

Milk Sugar in Infant Feeding.—Jarvis urges a more common use of lactose in infant feeding, based on the following observations: Lactose is well tolerated by the infant when the other elements of formulas are rendered more available for digestion; and it may be increased to amounts of the eventual formula in 10 Gm. doses (i. e., one level tablespoonful) at three-day intervals with safety. Boiling and stirring the formula for three minutes render the protein and fat of cow's milk more available for digestion by making it a more favorable medium for the administration of lactose than unboiled milk. The lactose-fed infant resembles but does not equal the breast-fed infant in firmness of tissues and resistance toward infections. The danger of sudden dehydration with acidosis in the presence of parenteral infection is less acute in lactose-fed infants than, as is well known, in infants fed on vegetable sugar. This is probably due to tissues of less water content normally. Age-weight for age-weight, the lactose-fed infant possesses more living tissue than does the infant fed on vegetable sugar. This is due to the lower water content as well as to the lower fat content of the tissues of the infant fed on milk sugar. Lactose formulas facilitate complementary and supplementary feedings with less danger of refusal by either the breast-fed or the bottle-fed infant. Lactose formulas lessen the dangers of the development of habitual anorexia or constipation. As a source of galactose for the development of the central nervous system, lactose is especially desirable as a sugar for modified feeding in an optimal amount.

California and Western Medicine, San Francisco

33: 769-848 (Nov.) 1930

Dermatologic Therapeutics: Basic Principles and Technic. M. Scholtz, Los Angeles.—p. 769.
Specific Radiosensitiveness of Lymphocytes: Significance in Radiotherapy. A. U. Desjardins, Rochester, Minn.—p. 775.
Unexplained Eosinophilia. A. B. Stockton, San Francisco.—p. 781.
*Allergic Toxemia and Migraine Due to Food Allergy. A. H. Rowe, Oakland.—p. 785.
Mild Mental Disturbances. T. G. Inman, San Francisco.—p. 794.
*Late Syphilis: Treatment with Single Strain of Malaria. R. Moore, Los Angeles.—p. 796.
Immunization Against Diphtheria with Toxin-Antitoxin. H. E. Thelander, San Francisco.—p. 798.
*Rural Obstetrics. J. H. Peck, Tooele, Utah.—p. 801.
Peptic Ulcers: Diagnosis and Treatment. P. K. Brown, San Francisco—p. 804.
William Bebb Collection of Prints of Paris Hospitals. E. West, San Francisco.—p. 809.
Compression Fracture of Fifth Lumbar Vertebra: Case. S. N. Jacobs and L. M Trauner, San Francisco.—p. 812.
Diverticula of Stomach. M. J. Geyman, Santa Barbara.—p. 813.
Dystocia Due to Fetal Ascites: Case. J. N. Ewer, Oakland.—p. 814.

Toxemia and Migraine Due to Food Allergy.—Rowe again calls attention to allergic toxemia due to food allergy and emphasizes the frequency of migraine due to food allergy, and the occurrence of certain cases of neuralgia arising from the same cause. The treatment of allergic toxemia and migraine due to food allergy is carried out by elimination diets modified according to the patient's history of food disagreements or by any positive skin reactions obtained on the patient. Good results demand strict adherence to the method described in former articles. The use of peptone subcutaneously has also been of benefit in controlling mild symptoms due to slight or obscure food sensitizations.

Treatment of Late Syphilis with Single Strain of Malaria.—Analytic evaluation of therapeutic results in 400 cases of dementia paralytica and cerebrospinal syphilis leads Moore to the conclusion that malaria treatment is able to support and revitalize physiologic defense mechanisms in many different types of late syphilis; that malaria treatment may be useful wherever there is gradually developing syphilitic weakness. The use of malaria treatment should be considered wherever and whenever physiologic defense mechanisms give signs of failure in their struggle against syphilis.

Rural Obstetrics.—Peck discusses home delivery procedures, meeting obstacles that come up under such conditions, with particular reference to actual experience in what might be called a cross section of the general population of a state presenting social and economic environments such as are found in Utah. This report covers 1,000 deliveries, in which series there was the loss of 1 mother. Only five patients were sent to the hospital. One patient died because of premature separation of the placenta at eight months. There were two complete lacerations in spontaneous vertex deliveries, blotting paper type. There were three in breech deliveries, all primiparas, four with satisfactory repair, one with some sphincter unreliability. Two sections were done in women with grossly deformed pelves. Two patients with severe infections were sent to the hospital, one of the patients having a pelvic abscess and the other a septic type of infection; both patients recovered. One antepartum fever patient and one preeclamptic patient were sent to the hospital, but each had a normal puerperium and a live baby. There were twelve patients who required uterine packing for control of hemorrhage. Five patients had breast abscesses in the first six weeks after delivery. About 10 per cent of the patients required versions, forceps or other obstetric operations. With the exception of the five hospital patients, these patients were delivered in home surroundings, such as in homesteaders' dirt-floored cabins, or in Japanese boarding houses, or wherever they were found. The charges per baby (including nursing, physician, housekeeper and incidentals) rarely exceeded the sum of $65. Peck says that every young physician starting to do general practice, and particularly obstetrics in rural communities, should be associated with an older physician who has had a large experience along that line. Any country doctor, if he is practicing obstetrics because he likes the work (and not because he must in order to hold his families), can show results in low mortality rates that will measure up most favorably to the rates in general hospitals. Other things being equal, a woman's own bed is not at all a bad place for her in which to have a baby.

Journal of Nutrition, Springfield, Ill.

3: 229-343 (Nov.) 1930

Iron Requirement in Early Childhood. M. S. Rose, E. McC. Vahlteich, E. Robb and E. M. Bloomfield, New York.—p. 229.
Basal Metabolism of Filipinos. M. Ocampo, N. Cordero and I. Concepcion, Manila, P. I—p. 237.
Chemical and Immunologic Study of Egg Protein Obtained under Restricted Diets. L. Gerber and R. H. Carr, Lafayette, Ind.—p. 245.
Vitamin B and G Contents of Certain Yeast Samples. E. J. Quinn, F. B. Whalen and J. G. Hartley, New York.—p. 257.
Absorption and Retention of Vitamin A in Young Children. J. I. Rowntree, Iowa City, Iowa.—p. 265.
Determination of Surface Area of White Rat. S. L. Diack, Ann Arbor, Mich.—p. 289.
Glycogen Formation in Rats: II. Diets Containing Approximately 87 Per Cent of Total Caloric Value in Form of Sucrose, Lard and Casein, Respectively. E. M. Greisheimer and O. H. Johnson, Minneapolis.—p. 297.
Meat in Nutrition: I. Beef Muscle. P. M. Nelson, M. H. Irwin and L. J. Peet, Ames, Iowa.—p. 303.
Id.: II. Dietary Factors Influencing Lactation. L. J. Peet, P. M. Nelson and E. A. Smith, Ames, Iowa.—p. 313.
Id.: III. Hemoglobin Formation. L. J. Peet, E. A. Smith and P. M. Nelson, Ames, Iowa.—p. 325.

Virginia Medical Monthly, Richmond

57: 495-564 (Nov.) 1930

Roentgen Treatment of Hyperthyroidism. W. Clarkson, Petersburg.—p. 498.
Relation Between General Medicine and Mental Hygiene: A Look Ahead. W. F. Drewry, Richmond.—p. 500.
Crossed Cylinders in Refraction. F. P. Smart, Norfolk.—p. 506.
Appendicitis in Middle-Aged. F. S. Johns, Richmond—p. 509.
Operative Obstetric Delivery. C. J. Andrews, Norfolk.—p. 511.
Problems in Proctology. W. W. Rixey, Richmond.—p. 513.
Foreign Bodies in Air and Food Passages: Fifty Cases. E. G. Gill, Roanoke.—p. 516.
Toxemias of Pregnancy. H. F. Kane and E. M. Ellerson, Washington, D. C.—p. 518.
Eclampsia. W. W. Wilkinson, LaCrosse.—p. 524.
Genes of Inheritance in Human Affairs. St. G. T. Grinnan, Richmond.—p. 525.
Primary Pneumonia in Virginia. S. D. Blackford, University.—p. 527.
Traumatic Injuries of Abdomen. C. W. Doughtie, Norfolk.—p. 528.
Aseptic (Lymphocytic) Meningitis. L. T. Gager, Washington, D. C.—p. 532.
Acute Spinal Abscess: Case. W. T. Gay, Suffolk.—p. 533.
Recognition of Goiter and Hyperthyroidism. W. W. Sager, Washington, D. C.—p. 534.
Agranulocytic Angina Simulating Diphtheria. B. S. Yancey, Chase City.—p. 536.
Spirit of "The Oath." R. K. Flannagan, Richmond.—p. 538.
Typhoid Fever from Standpoint of Public Health. S. J. Tabor, Portsmouth.—p. 544.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Lancet, London

2: 1001-1054 (Nov. 8) 1930

Diagnosis and Treatment of Some Common Minor Digestive Disorders. T. C. Hunt.—p. 1001.
*Plasma-Protein Loss with Edema but Without Proteinuria. T. I. Bennett, E. C. Dodds and J. D. Robertson.—p. 1006.
Cancer of Skin. A. R. Somerford.—p. 1008.
*Dick Test in Pregnancy and Relation to Puerperal Sepsis. D. Baird and R. Cruickshank.—p. 1009.
*Megacolon: Case. H. J. Starling.—p. 1013.
*Herpes Zoster of Fifth Lumbar Nerve. R. Waterhouse.—p. 1015.
Spirochetes in Feces. L. Soromenho.—p. 1015.

Plasma-Protein Loss with Edema but Without Proteinuria.—The six cases studied by Bennett et al. definitely support the theory that depletion of plasma proteins from any cause will lead to the production of edema. Three of the patients had ascites with high protein content; in the others there was extensive ulceration of the stomach presumably leading to long-continued loss. The cases presented striking similarities to the group often described as "nephrosis." Albuminuria, however, was absent and the blood cholesterol was within normal limits, whereas in nephrosis it is raised. In not one of these patients was there evidence of renal damage. The urine was free from albumin, casts, red blood cells or any abnormal constituent. In three of the cases death occurred, and at the necropsy the kidneys were found to be normal. In the others, tests of renal efficiency, such as the urea concentration and the water elimination test, failed to demonstrate any renal lesion. Admitting that such tests are usually negative in early nephrosis, the postmortem observations in three of the present cases, and the constant absence of proteinuria, may be taken as fairly conclusive evidence that the kidneys were normal in all. The authors therefore assume that in the human subject the diminution of plasma proteins, even for a considerable time, does not produce changes in the kidney.

Dick Test in Pregnancy end Relation to Puerperal Sepsis.—The Dick test was performed by Baird and Cruickshank on 600 pregnant women, of whom 22 per cent reacted positively, the incidence and intensity of positive reactions being greater in primiparas, irrespective of age, than in multiparas. Among multiparas the proportion of strongly positive reactors decreased with increasing age; so also did the incidence of puerperal sepsis, whereas both remained constant for all ages in primiparas. A correlation between a positive Dick test and susceptibility to puerperal sepsis was thus suggested but was not supported by further analysis. Previous streptococcal infection—scarlet fever, tonsillitis, puerperal sepsis—did not appear to influence the reaction to the Dick test. On the other hand, the reaction became negative when Dick-positive patients who had puerperal sepsis, however, were retested immediately after the pyrexia subsided. The puerperia of 500 women in the series were investigated. When all cases of puerperal pyrexia, whether notifiable or not, were divided into puerperal sepsis and pyrexia due to other causes, the analysis showed that women who reacted positively to the Dick test were not more liable to develop puerperal sepsis than were negative reactors. However, infection when it occurred tended to be more severe in the Dick-positive than in the Dick-negative cases. An investigation of the factors predisposing to puerperal sepsis showed that sepsis was much more frequently associated with a difficult or mismanaged labor and/or poor health than with a positive reaction to the Dick test.

Megacolon.—The essential lesion of the colon in the case described by Starling was a volvulus of the sigmoid flexure which had never become so complete as actually to occlude the lumen of the bowel. The patient, aged 48 years, had been delicate all her life and had suffered from constipation and sickness, especially in childhood. Her present trouble began at 24 years of age when she saw a consultant for constipation and "nerves"; no cardiac abnormality was noted then. A few years later she had severe gastritis and the heart beat was said to be irregular and intermittent; she rested for five years, with some improvement. At 31 she had a curious heart attack, said by one physician to be functional but by another to be serious, and she was continually in bed after this. In 1914 she saw a London consultant who diagnosed a congenital heart lesion. When Starling saw her first she had been confined either to her room or to her bed for ten years. She was lying on a couch but, even so, showed slight dyspnea. There was some pallor of the face, the general nutrition was good, and the teeth were sound, but there was marked pyorrhea of the gums. The heart was slightly enlarged, there were no bruits, the sounds were tictac, the pulse rate was 150 to 160, and the blood pressure 150 systolic and 110 diastolic. When the patient stood up for some minutes the toes, then the feet, and then the legs became at first congested, then a deep red, then definitely cyanosed. This congestion gradually increased until at the end of ten minutes the upper part of the thighs was a deep red, and the color increased downward to a deep purple. The patient stated that if she stood for much longer the congestion extended up as high as the upper part of the chest, when she would also have marked edema of the left leg and slight edema of the left hand and right leg. The abdomen was not distended but the percussion note all over was hyperresonant. In July, 1925, the first electrocardiogram was taken. This showed a left ventricular preponderance, T_3 inverted, and two extrasystoles in lead II. In March, 1926, she began to have curious fainting attacks and periods of irregular tachycardia. During the next three years these attacks of tachycardia slowly but surely increased in frequency, duration and severity. In November, 1929, she had a severe fainting attack followed by general convulsions and loss of consciousness for some hours, due probably to a cerebral embolus. In the early part of 1930 the attacks of tachycardia were almost continuous, and early one morning in April she was found to have died quietly about one hour after she had been seen to be sleeping peacefully. A partial postmortem was allowed. A double loop or volvulus occupied the greater part of the abdomen, the distal part arising from the sigmoid flexure and the proximal part ending close to the distal end, in the lower part of the ascending colon. The descending and transverse parts of the colon were twice (and in parts three times) the normal size and the latter was lying high up under the costal margin. Above this again was seen the stomach, the major portion of which was on the left side at the level of the fifth to the seventh ribs, but the duodenal portion was enormously elongated, stretching across to the right seventh rib in the midclavicular line. The upper limit of the diaphragm on the right side was at the third rib, the liver occupying the space below this, and on the left side was at the fifth rib. The heart was slightly larger than normal, the muscle and the valves apparently were normal.

Herpes Zoster of Fifth Lumbar Nerve.—Waterhouse records the case of a woman, aged 74, suffering from typical herpes zoster, evidently resulting from inflammation of the fifth lumbar nerve root ganglion on the right side. The vesicles covered the dorsum of the foot and of the first three toes, and the inner half of the fourth toe; vesicles were also present on the ventral aspect of the first three toes. In addition, they occupied the whole of the outer surface of the leg below the knee, two particularly prominent collections being present in the neighborhood of the head of the fibula. But what is of peculiar interest is the fact that in the center of the posterior aspect of the thigh, midway between the fold of the buttock and that of the knee, was situated an oval patch of vesicles measuring 2½ inches from above downward, and about 1¼ inches from side to side: higher up again was another similar but larger patch commencing 1 inch above the termination of the internatal cleft and extending downward and outward, across the buttock, for some 6 inches and being about 2¼ inches in breadth. The importance of this case consists in the light it throws on the sensory distribution of the fifth lumbar nerve, since it is extremely improbable that more than one nerve root was involved.

Paris Médical

2: 329-364 (Oct. 18) 1930

Medical Diseases of Kidney: Annual Review. F. Rathery.—p. 329.
*Azotemic Nephritis in Typhoid. A. Lemierre and R. Cattan.—p. 335.
Saturnine Nephritis. Pasteur Vallery-Radot and M. Dérot.—p. 341.

Azotemic Nephritis in Typhoid.—In the course of typhoid and paratyphoid, acute nephritic conditions with more or less pronounced azotemia often develop. It is impossible to estimate the frequency of the complication because the symptoms are so general that they often pass unrecognized. Examination of the urine is of no avail, for there is no constant relationship between the azotemia and urinary symptoms. Lemierre and Cattan show, however, that there is a definite clinical syndrome that may be regarded as pathognomonic. The three chief indications are an acute ataxo-adynamia, development of severe digestive disturbances (or aggravation of existing conditions), and a more or less rapid abatement of the fever. The lowered temperature is the most important of the three symptoms and has been found to be constant in azotemic complications of typhoid. The only way the existence of the azotemia can be established definitely is by determining the urea content of the blood. The authors advise careful observation of all typhoid patients so that analysis of the blood may be made whenever the clinical developments suggest the complication of nephritis with azotemia. A urea content of more than 0.5 Gm. in the course of typhoid is indicative of renal disturbances. In the majority of cases these nephritic conditions are benign and as the azotemia disappears the temperature of the patient rises. In some cases, however, the azotemia steadily increases, the temperature falls, and the patient dies before the nature of the complication is suspected.

Revue Médicale de la Suisse Romande, Lausanne

50: 689-752 (Oct. 25) 1930

Abortion and the New Penal Code of Vaud. M. Muret.—p. 689.
*Serology of Tuberculosis. J. L. Dufour and V. E. Badoux.—p. 700.
*Atropine Treatment in Habitual Vomiting in a Nursling. J. Stephani-Cherbuliez.—p. 720.

Serology of Tuberculosis.—Dufour and Badoux conducted a series of experiments with 100 tuberculous patients, or patients believed to be tuberculous. Each was given simultaneously a complement fixation test (Besredka method), a Vernes resorcinol flocculation test, and an erythrocyte sedimentation test (Fahraeus-Westergren method). The tests were made with blood from the same venous puncture, taken during a period of fasting. They found that among the twenty-eight patients who later died as a result of their tuberculous conditions the proportion of positive reactions to all three tests was extremely high (Vernes, 96.4 per cent; Besredka, 92.8 per cent and sedimentation rate, 92.8 per cent). They observed, moreover, that in general there was a concordance between the serologic reactions and the clinical evolution in individual patients. This is especially true of the Besredka and Vernes reactions. The sedimentation rate often presents anomalies that would be misleading without the evidence of the other reactions; for instance, cachectic conditions often cause a marked decrease in the sedimentation rate, while the Besredka and Vernes reactions remain high, and other influences such as exudates in formation and general pathologic conditions often affect the sedimentation of erythrocytes. The authors admit that in a few cases misleading results were obtained with other tests also, as in the case of a woman whose sedimentation rate alone was positive, both the Besredka and Vernes tests showing definitely negative results, and who died shortly afterward. However, they are convinced that the use of all three tests is usually a reliable method of determining the presence and nature of tuberculosis. In doubtful cases (i. e., hovering between positive and negative) a negative Besredka reaction is more significant than a positive Vernes reaction. Both Vernes and Besredka reactions are more constant than the erythrocyte sedimentation reaction, since the last is more susceptible to the influence of general pathologic conditions. A resorcinol flocculation reaction of more than 30 is almost always certain proof of a progressive tuberculosis.

Atropine for Habitual Vomiting in Nursling.—Stephani-Cherbuliez reports the case of a girl, aged 12 months, who had begun to have habitual vomiting at the age of 6 months immediately after an antivariola vaccination. She was extremely thin and weak, her skin was dry and white, she cried constantly from hunger and thirst, and her sleep was intermittent. Enemas every two or four days produced meager stools that were dry and firm. Several physicians had tried all the usual combinations of diet and medicinal treatment, with no success. The child showed almost absolute intolerance of any form of nourishment. As a last resort, the author tried the following treatment, which proved eminently successful: At first 1 mg. of atropine was given each day, in two granules of 0.5 mg. each, taken morning and evening. The vomiting disappeared at the afternoon and night feedings but persisted in the morning and evening. The daily dose was then increased to 2 mg., 0.5 mg. being administered four times a day. The vomiting immediately ceased, the skin began to regain its moisture, the stools became normal, and the child began to regain her strength and weight. After fifteen days the dose was reduced to 1 mg., after thirty days to 0.5 mg., later to 0.25 mg. After three months the atropine treatment was discontinued. The condition of the patient steadily improved and the vomiting did not recur.

Schweizerische medizinische Wochenschrift, Basel

60: 933-956 (Oct. 4) 1930

Sound Conductivity of Rigid and Flexible Stethoscopes. Tobler.—p. 933.
Frequency of Ascariasis in Zurich and in Its Surroundings. R. Matossi.—p. 941.
*Mercury Exanthems in Children. E. Jenny.—p. 942.
Changes in Vessels of Retina in Their Relation to Changes in Entire Vascular System, Especially in Hypertension. F. Stocker.—p. 945.
When to Perform Plastic Operation for Repair of Perforations of Eyeball. *J. Strebel.—p. 947.*

Mercury Exanthems in Children.—Jenny describes his observations on seven children in whom ingestion of an anthelmintic containing mild mercurous chloride caused fever and skin eruptions of the type that are noted in erythema infectiosum. In another case the same rash developed after silver amalgamate had been used for the filling of teeth. It could be demonstrated that those patients were subject to a hypersensitiveness to mercury. The author thinks that such hypersusceptibility is more frequent than is generally assumed.

Clinica Chirurgica, Milan

33: 987-1098 (Sept.) 1930

Mucoceles and Pseudomyxomas of Appendix. C. Lorenzetti.—p. 987.
*Congenital Intestinal Occlusion Due to Malformation of Cecum. E. Santi.—p. *1021.*
Action of Viosterol on Epiphyseal Autoplastic Transplants. D. Vallone.—p. 1029.

Congenital Intestinal Occlusion Due to Malformation of Cecum.—Santi describes a case of congenital intestinal occlusion caused by arrested development and malformation of the cecum. As regards the causes that may have determined the arrested development, the author cannot apply the theories of Tandler and Forssner for in his case there was neither atresia nor stenosis. He might fall back on fetal inflammations (peritonitis, enteritis), which undoubtedly existed, as is shown by the fetal diseases (tuberculosis, syphilis, endocarditis) and which may without doubt be the cause of malformations, but before they can be accepted they must be demonstrated in the case in question, which is, however, *impossible in his case.* He thinks that the condition may be regarded rather as a malformation due to a reversion to a more primitive type, owing to a peculiar and unknown predisposition of the germ cell.

Giornale di Clinica Medica, Parma

11: 917-980 (Sept. 20) 1930

*Bactericidal Potency in Vitro of Blood of Irradiated Rabbits, and Behavior of Certain Septicemic Organisms in Rabbits. P. Marginesu.—p. 917.
Case of Sodiku, or Rat-Bite Fever. F. Stefani.—p. 931.

Bactericidal Potency of Blood of Irradiated Rabbits.—Marginesu found that the blood or the blood serum of rabbits irradiated at various times with ultraviolet rays shows no appreciable differences from the blood and the serum of nonirradiated rabbits, as concerns their bactericidal potency in vitro toward the pneumococcus and the bacillus of hemorrhagic septicemia of rabbits. Nor did the p_H of the blood undergo perceptible variations as a result of the irradiation of the animals. The whole blood (citrated) was found capable of greater bactericidal activity than the serum in both the irradiated and in the nonirradiated rabbits. The behavior in the circulation of certain septicemic organisms possessing high virulence (bacillus of hemorrhagic septicemia of cattle) and the course of infection resulting from these micro-organisms were similar in the rabbits irradiated for a period of fifteen days preceding the infective inoculation and in the nonirradiated rabbits. In rabbits irradiated after the inoculation, the multiplication of the micro-organisms and the deaths of the animals underwent a slight retardation. A somewhat attenuated strain of pneumococcus, type I, inoculated by the intravenous route into irradiated and into nonirradiated rabbits, was isolated from the blood in the first fifteen hours but then disappeared from the circulation almost simultaneously in all rabbits and later reappeared first in the nonirradiated and then, still later, in the irradiated rabbits. Both the irradiated and the nonirradiated rabbits died from pneumococcic septicemia; but in the irradiated animals death occurred a few days later than in the controls—the nonirradiated.

Siglo Médico, Madrid

86: 321-344 (Sept. 27) 1930

*Bloodless Treatment of Carbuncle in Rural Communities. C. Pérez-Caballero Palacios.—p. 321.
Present Status on Problems of Infection. M. R. Castex.—p. 323.
Pathogenesis and Treatment of Gout by Mineral Waters. C. García de Cosa.—p. 328.

Bloodless Treatment of Carbuncle in Rural Communities.—Pérez-Caballero Palacios states that in most instances the local treatment of carbuncle is ineffective. General treatment gives better results, because it checks general sepsis. The author advises the following method: As soon as the patient is observed, an intravenous injection of 0.3 Gm. of neoarsphenamine, and six hours later a subcutaneous injection of 10 cc. of anticarbuncle serum, are given. Both injections are repeated next day, the dose of the injection of neoarsphenamine being increased to 0.45 Gm. As local treatment, small compresses soaked in a 2:1,000 solution of mercuric chloride are applied during the first twenty-four hours. During the second day, the local treatment is varied slightly: the surrounding areas of the pustule are protected with an absorbent paper and just one drop of a 1:1,000 solution of mercuric chloride is instilled over the pustule and allowed to evaporate. Then another drop is instilled and so on until 15 drops are administered during the day and another 15 drops during the night. The author has obtained good results in more than twenty cases within two days. The treatment is efficient, painless and economical, and no scar is left. The principal indication for the method is its use in rural practice.

Deutsche medizinische Wochenschrift, Berlin

56: 1725-1768 (Oct. 10) 1930. Partial Index

*Serotherapy of Diphtheritic Paralysis. U. Friedemann and A. Elkeles.—p. 1725.
Commercial Strophanthin Solutions and Their Efficacy. H. Fühner.—p. 1727.
Significance of Constitutional Factors for Suggestive Phenomena. A. Herzberg.—p. 1729.
*Powder or Fat in Care of Skin of Infants? W. Bayer.—p. 1733.
Osteopsathyrosis with Blue Scleras: Treatment. J. Breuer.—p. 1735.
Irradiation in Treatment of Wounds. Axmann.—p. 1735.

Serotherapy of Diphtheritic Paralysis.—Friedemann and Elkeles found that the blood-cerebrospinal fluid barrier is impermeable for antitoxin in normal rabbits and in human beings with diphtheria. This would indicate that it is impossible to influence diphtheritic paralysis by means of therapeutic serum. In contradiction to this theory it was found that the intracerebral diphtheria poisoning of the rabbit can be cured by the intravenous administration of large doses of antitoxin. This apparent contradiction may be explained by the fact that the cerebral diphtheria poisoning makes the blood-cerebrospinal fluid barrier permeable for antitoxin.

Powder or Fat in Care of Skin of Infants?—Bayer shows that the use of powders, that is, dry treatment of the skin of infants cannot be considered a physiologic method. Theoretical reasoning as well as practical experience indicates that, if fatty substances are employed in the care of the infant's skin, inflammations and exudations are prevented more effectively than if powders are used.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JULY-DECEMBER, 1930

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Acta Medica Scandinavica. Stockholm.
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*American Journal of Diseases of Children. A. M. A., Chicago.
American Journal of Hygiene. Baltimore.
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Annals of Surgery. Philadelphia.
Archiv f. exper. Pathologie u. Pharmakol. Leipzig.
Archiv für Gynäkologie. Berlin.
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*Archives of Neurology and Psychiatry. A. M. A., Chicago.
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*Archives of Otolaryngology. A. M. A., Chicago.
*Archives of Pathology and Laboratory Medicine. A. M. A., Chicago.
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*Archives of Surgery. A. M. A., Chicago.
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SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "ME," Medical Economics; "ab," abstract; the star (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M" and "S." State board examinations are entered the general heading State Board Reports, and not under the names of the individual states. Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

For author index see page 2078.

A

A. B. & S.; A. B. S. & C., poisoning in children from, [Aikman] ★1663
A. D. S. Cold and Grippe Tablets, 1444—BI
ABBOTT, LE ROY C., 1512
ABDERHALDEN TEST, Sdrodowski modification in pregnancy, [Segre] 1625—ab
ABDOMEN, acute conditions, costly delays in, [Smith] 156—ab
  acute conditions, purpura simulating, [Fraser] 1299—ab
  acute conditions, x-ray diagnosis, [Laurell] 701—ab
  acute syndrome of cord sections, [Hamant] 1056—ab
  cavity, peptic ulcer perforates, [Singer] 229—ab
  diagnostic investigation, [Toutkowsky] 234—ab
  disorders in children, [Jehle] 460—ab
  Fistula: See Fistula
  injury, hemorrhagic steatopancreatic necrosis after, [Scaglia] 1216—ab
  laparotomy incisions, rectus suture in, [Latzko] 763—ab
  laparotomy, necrosis of wall after, [Hellström] 702—ab
  laparotomy scars, endometriosis, [Keene & Kimbrough] ★1166
  pain, from hepatodiaphragmatic adhesions, [Hinton] ★1744
  pain, of parietal from intra-abdominal origin, sign differentiating, [Rubenstone] ★1803
  pain, syphilitic celialgia, [Turriès] 1054—ab
  purpura as acute emergency of, [Bailey] 1867—ab
  reflexes, loss of, [Hall] ★703
  relationship between nerve plexuses and lymph nodes, [Kiss] 1293—ab
  skin, fat in, [Plaschkes] 901—ab
  surgery, adhesions after, 1119
  surgery, by McDowell, in 1809, 1595
  surgery, for rectal cancer, [Jones] ★1172
  surgery, painful scars, [Bancroft] 824—ab
  surgery, ulcerative colitis complicating [Bargen] 372—ab
  surgery, ulcers after, [Freeman] 1778—ab
  traumatic lesions, [Hyndman] 155—ab
  tumor, lymphangioma, [Hill] 1781—ab
  unusual conditions, [Fisher] 155—ab
  wall, gallstones pass through, [Davis] 1458—ab
ABDOMINAL BAND, for infants, 817
ABIOTROPHY, in children, insulin for, [Careddu] 899—ab
  nervous disease, [Roholm] 461—ab
ABNORMAL, meaning of, 323—ab
ABNORMALITIES: See also Deformities; under names of organs and regions, as Colon; Duodenum; Foot; Hip Joint; Nervous System; Urachus; etc.
  in diabetic children, [Priesel] 829—ab
  relation to physical diagnosis, [Mackmull] 1204—ab
ABORTION: See also under Medicolegal Abstracts at end of letter M
  Commission on, Russia, 1192
  Congress of League for Sexual Reform on, 1191
  criminal, Amante Rongetti, 668; 1452
  criminal, licenses revoked for, 539
  criminal, masseuse sentenced for, 1841
  fibromyoma expelled after, [Borochowitsch] 1461—ab
  from removal of tapeworm, 1041
  in parkinsonism, [Bland & Goldstein] ★473
  in tuberculous, [Matthews & Bryant] ★1711
  infectious, [Sievers] 638—ab; 673
  problem, Berlin, 216
  Roman Catholic Church attitude on, 1191
  therapeutic, [Findley] ★857
  therapeutic, in albuminuria, edema and hypertension, etc., [Huggins & Bucy] ★653
  therapeutic, in congenital hereditary cataract or in brain tumor, [Fleischmann] 1305—ab
  treatment, [Grann-Petersen] 1630—ab
ABORTUS FEVER: See Undulant Fever
ABRAMS Electronic Reactions, 1523—BI
ABSCESS: See also Brain; Douglas Pouch; Lungs; etc.
  after appendicitis, [Tagliavacche] 1541—ab
  agranulocytosis, [Robers & Kracke] ★780
ABSCESS—Continued
  Amebic: See Liver; Lungs
  cold, radical treatment, [Benedetti-Valentini] 1950—ab
  fixation, for congenital cystic lymphangioma, [Suner] 976—ab
  paravertebral: early roentgen sign, [Rigler] 1536—ab
  perinephric, [Campbell] 1943—ab
  subphrenic, [Gatewood] 1290—ab; [Dahl] 1306—ab
  subphrenic, with gallbladder empyema, [Polayes & Lederer] ★407
  tuberculous, pelvic, extraperitoneal, [Brady] ★338
ABSORBINE, JR., for ringworm of feet, 433
ABSORPTION of aluminum in body, 1691
  of calcium and phosphorus in rickets, [Peola] 1541—ab
  of dextrose by rectum vs. blood sugar changes, 146; 1283
  of drugs from right ventricular cavity, [Wiggers] 625—ab
  of lead from gastro-intestinal canal, [Miyasaki] 238—ab
  of phenol, 1197
  of ragweed pollen from nose and throat, disappearance after, [Cohen & others] 293—ab; 1456—ab
  of toxins, fatal, in mechanical ileus, [Heusser] 903—ab
ACACIA solution, for invisible writing, [Langen] 1628—ab
ACADEMY: See also American Academy of Ophthalmology and Otolaryngology; Nashville Academy of Medicine; National Academy of Sciences; New York Academy of Medicine; etc.
  Accademia Lancisiana, meeting, 947
  of Medicine, French, 58; 544; 606
ACANTHOSIS nigricans confined to palms and soles, 145
ACAPNIA in postoperative shock, atelectasis and pneumonia, [Henderson] ★572
ACCESSORY SINUSES: See Nose
ACCIDENTS: See also First Aid; Safety; Trauma; Workmen's Compensation Acts; etc.; and under Medicolegal Abstracts at the end of letter M
  Automobile: See Automobile
  aviation, 1924
  aviation, anemia in pilot after, [Midulla] 305—ab
  fatal, increase, Michigan, 601
  Industrial: See Industrial accidents
  Insurance: See Insurance
  street, 18 deaths a day, 1599
ACCOUNTS, bad, losses by, 602
  hospital accounting system, 1433
  Robison National Clearing Company, Inc., 1853—BI
ACETABULUM, fractures from crushing, [Truzzi] 1872—ab
ACETANILID, dangers involved in indiscriminate use of, 1676
  sulphemoglobinemia, [Harrop & Waterfield] ★647
ACETARSONE in malaria, [Bass] ★989
ACETIC ACID: See Acid
ACETONE in Blood: See Blood
  in Urine: See Urine
  solution, alcoholic, of gentian violet in varicose veins sloughs, [Kilbourne] ★787
*di*ACETYLMORPHINE poisoning, Drinker respirator in, [Drinker and others] ★1251
ACETYLSALICYLIC ACID: See Acid
ACHIEVEMENT, professional, determinants, 116—E
ACHLORHYDRIA: See Stomach acidity
ACHYLIA gastrica, differential diagnosis with neutral red, [Streicher] ★326
  gastrica, pepsin in urine [Rothschild 239—ab
  gastrica, relation to pernicious anemia, [Castle] 163—ab, 1289—ab
ACID, acetic, solution for counting leukocytes, 817
  acetic, use in biologic diagnosis of pregnancy, [Laffont] 974—ab
  acetylsalicylic and whisky in asthma, [Beckman], ★1585
  acetylsalicylic, dispensing, 1366
ACID—Continued
  acetylsalicylic, in preventing rheumatic manifestations, [Leech] ★932
  acetylsalicylic, intoxicating effect of using aspirin in Coca Cola, 1366
  acetylsalicylic, nostrum, Asper-Lax, 430—BI
  acetylsalicylic, nostrum Nuremedy, 680—BI
  acetylsalicylic, possible neuritis from overdosage, 614
  acetylsalicylic, sulphemoglobinemia from, [Harrop & Waterfield] ★647
  alkaline meat mixtures, duodenal contents reaction to, [Mettier] 449—ab
  antoxyproteic, in urine, in amentia praecox, [Gullotta] 699—ab
  ash food elements, [Stone] ★711
  barbituric, to prevent cocaine poisoning, 1839—E
  boric, pneumonoconiosis or pulmonary hemorrhage from, 684
  boric, poisoning in children, [Aikman] ★1662
  Carbolic: See Phenol
  *tri*chloracetic, for chemocoagulation of bladder tumors, [Stutzin] 1545—ab
  diallylbarbituric, cardiac irregularities under, [Brow & others] ★715
  diet effect on feces of infants, [Gerstley] 689—ab
  diet in asthma, [Tiefensee] 1462—ab
  diet vs. bone regeneration, [Mondry] 1543—ab
  fatty, becoming available for neutralizing toxins, 664—E
  glycuronic, in urine, significance, 615
  hydrochloric, and diarrhea, [Emery], 1699—ab
  hydrochloric, free, secretion vs. hyperthyroidism, [Brown] 1291—ab
  hydrochloric, in pernicious anemia with achlorhydria, [Davis] 628—ab
  hydrochloric, poisoning in children, [Aikman] ★1662
  hydrochloric, treatment in essential hypertension, [Ayman] ★246; 666—E
  hydrocyanic gas, execution by in state prison, [Hamer] ★661
  hydrocyanic, in viscera at delayed necropsies, 544
  β-hydroxyglutamic in liver active in pernicious anemia, 1509—E
  5-Iodo-2-Pyridon-N-Acetic: See Iopax
  Isoamylethylbarbituric Acid: See Amytal.
  Lactic: See also Milk, acidified
  Lactic, in Blood: See Blood
  lactic, increased formation in muscles of gravidas, [Hoffmann] 1627—ab
  neutralization, value in gastroduodenal ulcers, [Palmer] 1127—ab
  nitrohydrochloric, in hayfever, 1117; [Beckman] ★1585
  phenylcinchoninic, liver atrophy due to, 345—E; [Rabinowitz] ★1229
  Picric: See Trinitrophenol
  sodium pyrophosphate, toxicity, 65
  sulphosalicylic, Albutesta, 1347
  sulphosalicylic, use in determining albumin in spinal fluid, [Berger] 458—ab
  sulphuric, in blood chemistry analysis, [Mathieu] 1130—ab
  sulphurous plus sulphuric, nostrum, Sanovapor, 1365—BI
  tannic, for burns, [Wollesen] 764—ab; [Davidson] 1941—ab
  tannic, removal of tattoo marks, 1763
  tetraiodo-orthosulphobenzoic, disodium salt of, in roentgen diagnosis of synovial adhesions, 1749—E
  vanadic, poisoning from shoe dyes, 739
ACID-BASE EQUILIBRIUM and allergy, [Beckman] ★1582
  in cardiorenal diseases, [Lipets] 1629—ab
  in tuberculosis, [Varela] 1876—ab
ACIDIFIED MILK: See Milk
ACIDOPHILIC cells in thyroid, [Warren] 1296—ab
ACIDOPHILUS: See Bacillus acidophilus
ACIDOSIS: See also Diabetes Mellitus
  allergy and, [Beckman] ★1582
  allergy as special type, [Beckman] 294—ab
  debility and, [Osman] 669—ab
  dietary considerations, [Stone] ★711
  from ammonium chloride, [Morris] 691—ab
  of advanced renal disease, [Drake] 1772—ab

- ACNE in phthisis, [Griesbach] 1877—ab
  - nostrum, Dr. James' prescription, 1668—BI
  - pustulosa, phenol, [Matusis] 296—ab
  - rosacea, 883
  - treatment, staphylococcus toxin, [Weise] ★324; [Greenbaum & Harkins] 815—C; [Weise] 1607—C
- ACONITINE poisoning causing cardiac collapse, [Hartung] ★1265
- ACOUSTICON, use of hearing devices, 748
- ACRIFLAVINE hydrochloride, action on Monilia tropicalis, [Lim] 629—ab
  - hydrochloride, intravenously in psoriasis vulgaris, [Sweitzer] 1942—ab
  - hydrochloride, use in undulant fever, 747
- ACROMEGALY, Leonard Portal Mark, the physician who described it in himself, 1109, 1844
  - thyrodectomy in, [Kaufmann] 239—ab
- ACROPARESTHESIA in pernicious anemia, 1609
- ACTINOMYCOSIS, is pus containing grains pathognomonic for, [Elken] 904—ab
  - of kidney, [Recht] 1058—ab
  - of lungs, [Donalies] 634—ab; [Oldenburg] 977—ab
  - scalpel surgery for, [MacKee & Stone] ★1317
  - treatment, lymph node preparations, [Trauner] 1305—ab
- ADAMS-STOKES SYNDROME: See Heart block
- ADDICTIONS: See Alcoholism; Morphine; Narcotics; Whisky; etc.
- ADDISON'S ANEMIA: See Anemia, Pernicious
- ADDISON'S DISEASE, [Saphir & Binswanger] ★1007, 1506—E; 1836—E
  - diagnosis, roentgen, [Thompson] 1621—ab
  - in Negro, [Sala] 1374—ab
  - unusual syndromes, [Brower] 1017—ab
  - with congenital absence of suprarenals, [Crosby] 754—ab
- ADENITIS: See Lymphatic System
- ADENOCARCINOMA in von Brunn's glands, [Caylor] ★1739
  - treatment, magnesia, [Bolaffi] 698—ab
- ADENOIDECTOMY vs. colds, [McLean] ★1339
- ADENOIDS, census of children with, Italy, 60
  - cystic carcinoma, [Spies] 1293—ab
- ADENOMA of liver, [Petit-Dutaillis] 164—ab
  - of mammary gland during pregnancy, [Kreibig] 1304—ab
  - of suprarenal medulla, with paroxysmal hypertension, [Labbé] 303—ab
  - of thyroid, toxic, cardiac accidents in, [Froyez] 1299—ab
  - of thyroid, unrecognized, [Gilman] 1290—ab
  - polypi of large bowel, [Fansler] ★1969
  - scalpel surgery for, [MacKee & Stone] ★1317
- ADENOMYOMA of uterus, endometriosis, [Keene & Kimbrough] ★1164
- ADENOPAPILLOMAS, multiple, of stomach, [Ackman] 1377—ab
- ADENOPATHIES: See Lymphatic System
- ADHESIONS, diaphragmatic, [Head] 230—ab
  - hepatodiaphragmatic, abdominal pain from, [Hinton] ★1744
  - prevention, amniotic fluid, [Lacey] 962—ab; [Giordanengo] 974—ab
  - synovial, roentgen diagnosis by disodium salt of tetraiodo-orthosulphobenzoic acid, 1749—E
- ADHESIVE PLASTER bandage, wound healing under, [Dabasi] 1513—ab
  - separation of nates by, [Bearse] 1619—ab
- ADIPOSITY: See Obesity
- ADJUSTOR, Webb Company, 745—BI
- ADNEXA; ADNEXITIS: See Uterus
- ADOLESCENCE, conference on, 1354
  - coxa vara in, 1846
  - female genital hypoplasia in, [Meaker] ★468
  - impotence after juvenile excess, 1447; 1990
  - menstrual disorders in, [Lawrence] ★1148
  - osteomyelitis in, [Biancheri] 760—ab
  - retarded puberty, due to hypothyroidism? 955
- ADRENALIN: See Epinephrine
- ADRENALS: See Suprarenals
- ADVERTISING: See also Testimonials
  - agency, Kling-Gibson, and Marmola, 359—BI
  - by physicians, 811; 1267—E; 1268—E
  - food fads and fancies and newspapers, [Stone] ★713
  - of dentifrice, 1267—E
  - of Fleischmann's Yeast, ★723; 730—E
  - of Gynergen "Sandoz," [Fletcher] 746—C; [Sandoz Chemical Works] 1195—C
  - professor censured for, France, 1276
  - refusal of De Castro advertisements of ergot by state journals, ★722; 730—E
- ADVISORY SERVICE BUREAU, 814—BI
- ADYNAMIA in phthisis, [Stein] 241—ab
- AFFECTEPILEPSY, [Notkin] 1128—ab
- AFRICA: See also South Africa
  - trypanosomiasis in, 1031
- AGAR ascites blood agar plates, [Pilot] ★261
  - liver agar as basis for eosin-methylene blue plates, [Amoss & Poston] ★482
- AGE: See also Old Age
  - at which menopause occurs, 1197
  - exophthalmic goiter in middle-aged, roentgenotherapy, [Jugenburg] 309—ab
  - greatly influences risk of operation, [Butler & others] ★89
  - incidence of endometriosis, [Keene & Kimbrough] ★1165
  - of menarche, 13.9 years, [Lawrence] ★1149
  - variations of blood phosphorus, [Bullock] 1773—ab
- AGE—Continued
  - variations of zinc content in body, [Bertrand] 1299—ab
  - working capacity at thirty-five, 1928
- AGENCIES, collection, Robison National Clearing Company, Inc., 1853—BI
- AGGLUTINATION: See also Iso-agglutination
  - of typhoid bacilli in patients having unrelated infections, 1351—E
  - test in pneumonia, [Sabin] 371—ab
  - test in rhinoscleroma, [Elbert] 970—ab
  - test in tularemia, typhus and undulant fever, [Lewis] 559—ab
  - test to identify colorless prodigiosus bacilli [Schad] 1950—ab
- AGGLUTININS in blood in recipient of many transfusions, [Polayes & Lederer) ★407
  - serodiagnostic hazard, 733—E
- AGOSTINELLI'S Method in typhoid, [Guerrero] 1942—ab
- AGOTAN, liver atrophy from, 315—E; [Rabinowitz] ★1229
- AGRANULOCYTOSIS: See Angina
- AIR, bacteria in, danger, 1363
  - barometric pressure, effect on epidemics, 739
  - conditioning for premature infants, 1100—E
  - Embolism: See Embolism
  - hot-air bath, sterilization by, 288; 739
  - injection into cranium in hydrocephalus and infantile epilepsy, 675
  - injection, scrotal, emphysema after, [Schüller] 311—ab
  - respiration in atmosphere of oxygen, 875
  - smoke in, getting rid of, New York City, 871
  - smoke in, loss of light due to, 1921
  - vent in bath room from hygienic viewpoint, 1932
  - warm, dry, instrument giving, Sorensen Therapeutic Inhaler, No. 922, 413
- AIR PASSAGES: See Respiratory Tract
- AIRPLANE: See Aviation
- ALACTA, 1505
- ALBANY Medical College, 55
- ALBOLATUM, 430—BI
- ALBUMIN, cause of pistons sticking in syringes, 1113
  - in Blood: See Blood
  - in spinal fluid, determination, [Berger] 458—ab
  - in Urine: See Albuminuria
- ALBUMINURIA; Albutesta; reagent for determining albumin in urine, 1347
  - in nephrosis, [Cowie] 1373—ab
  - pregnancy, etc., [Huggins & Bucy] ★653
  - produced by sodium chloride solutions intravenously, [Farrington] 1048—ab
  - with globulin in urine, [Fischer] 830—ab
- ALBUMOSURIA, test for, 947
- ALBUTESTA, 1347
- ALCOHOL: See also National Prohibition Act; Prohibition; Whisky; Wine; etc.
  - acetone solution of gentian violet use in varicose veins sloughs, [Kilbourne] ★787
  - anesthesia by intravenous injection, [Palma] 305—ab; [Constantin] 454—ab
  - Antialcohol Society, 1849
  - crusade against drinking customs in schools, Germany, 610
  - Denatured: See Methyl Alcohol
  - dermatitis from, [Ramirez & Eller] ★1082
  - epilepsy, [Notkin] 1128—ab
  - extracted liver, [McHargue] 756—ab
  - for hand sterilization, 433
  - formation in body, 615; 1119
  - in therapeutics, 672; [Sullivan] 1170—ab
  - injection in facial spasm, 818
  - injection in larynx tuberculosis, [Schugt] 169—ab
  - injection in obliterative vascular disease, [Smithwick] 1208—ab
  - injection in thrombo-angiitis obliterans, [Stern] 1775—ab
  - injections for hernia complications, [Goldhahn] 1303—ab
  - lead poisoning and, [Moore] 1775—ab
  - Methyl: See Methyl Alcohol
  - physicians who are total abstainers, 1849
  - prescription, army officers cannot give, 351
  - problem and hemochromatosis, [Nye] 1762—C
  - problem, England, 211; 1681
  - sale of, effects of law limiting, Belgium, 1602
  - scarcity vs. death rate, [Bandel] 212—ab
  - treatment of gangrene, [Marnedov] 461—ab
  - treatment with U. S. P. 190 proof in a whisky addict, 614
  - value as beverage and drug, 672
  - Wood: See Methyl Alcohol
- ALCOHOLISM, coma, Drinker respirator in, [Drinker & others] ★1251
  - convictions for, Great Britain, 1681
  - deaths from, decreased last year, U. S., 1597
  - spinal drainage in deliria, [Goldsmith] 1775—ab
  - therapeutic, in dementia praecox, [Sullivan] 1170—ab
  - treatment, 1932
- ALDRICH-HENCH blood urea outfit, 1366
- ALFALFA extracts treated with sulphur dioxide, vitamin A in, 347—E
- ALIENISTS: See Psychiatrists
- ALIMENTARY TRACT: See Digestive Tract
- ALIZARIN, staining of calcium, [Cameron] 1946 –ab
- ALKALI, administration in gastric ulcer diagnosis, [Anfänger] 458—ab
  - alkaline ash diet in renal rickets, 116—E
  - alkaline diet (correction), 56
  - alkaline diet in bone regeneration, [Mondry] 1513—ab
  - alkaline meat mixtures, duodenal contents reaction to, [Mettler] 449—ab
  - alkaline powders, effects of prolonged use of, 1608
  - alkaline tide of urine after total gastrectomy, [Walters] ★103
  - alkalinity of blood in eczema, [Bikkenin] 1516—ab
  - alkalinity of urine, 551
  - alkalization in acute diseases, [Achard] 1782—ab
  - alkalosis of vomiting, [Drake] 1773—ab
  - pistons that stick in syringes, 1113
  - reserve in cardiac decompensation, [Kerdin] 562—ab, 632—ab
  - reserve in malignant tumors and in hepatic disorders, [Pacetto] 376—ab
  - reserve in sodium hydroxide poisoning, [Séculitch] 455—ab
  - treatment of chronic nephritis, [Osman] 1947—ab
  - treatment of diabetic coma futile, [Lemann] 74—ab, 892—ab
  - treatment of pneumonia, [Bethea] ★925
- ALLERGY: See Anaphylaxis
- ALLERTON, D. L., fraudulent magazine solicitor, 1923
- ALL-INDIA Institute of Hygiene, 1514
  - Medical Council, 137; 423; 1924
- ALOPECIA areata in exophthalmic goiter, [Sabouraud] 631—ab
  - areata, ultraviolet rays for, [Narducci] 301—ab
  - case of "golden hair," [Knutsson] 462—ab
  - etiology and pathogenesis, [Sannicandro] 761—ab
  - nostrum, Vreelands, 219—BI; 613—BI
- ALP ROSE Canned Foods, 486
- ALPHABET, origin, 1031
- ALPHA-NAPHCO, 34
- ALTBAUMER, JOHN, 1037—BI
- ALTITUDE, high, for splenectomized persons, [Greppi] 761—ab
  - high, and allergy, [Beckman] ★1584
  - high, physiologic factors in conquest of, 115—E
  - high, physiologic study on Kachenjunga (28,150 ft.) 1030
- ALUM, exsiccated, for dressings for fractures and joint diseases, [Benatuil] 1301—ab
- ALUMINUM baking powders, habitual use, effect on food utilization, [Kraft] 753—ab
  - cooking vessels, use, 1849
  - disks for identifying new-born, [Irving] 751—ab
  - in body not cumulative, 1691
  - irradiated, use in surgical conditions, [Ried] 1218—ab
  - tube in roentgen examination of symphysis pubis in women, [Dale] 1060—ab
- ALVARENGA PRIZE: See Prizes
- ALZHEIMER'S DISEASE, [Verhaart] 311—ab
- AMAUROTIC IDIOCY: See Idiocy
- AMAZINE, new name for old product, 1933
- AMBRUSTER, HOWARD W., ★722; 730—E
- AMBULANCE emergency service improved, Prussia, 428
- AMEBA: See Endameba
  - Abscess: See Liver; Lungs
- AMEBIASIS: See also Dysentery, amebic; Endamebiasis; Liver, amebic abscess; Lungs, amebic abscess
  - complement fixation test in, [Craig] ★10
- AMENORRHEA, 65
  - clinical experiments with estria, [Dodds] 451—ab
  - functional, [Novak] ★1222
- AMENTIA praecox, [Gullotta] 699—ab
- AMERICAN: For societies whose names begin with "American" see also under list of societies at end of letter S
  - aid for establishments in France, 1925
  - culture, origin, 945
  - delegation at International Hygienic Exposition, 812
- AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, 1514
- AMERICAN ASSOCIATION OF CANCER RESEARCH WORKERS, 872
- AMERICAN ASSOCIATION OF MENTAL HYGIENE EXECUTIVES organized, 136
- AMERICAN BANKERS ASSOCIATION, A. M. A. recommend to, policy to save for sickness, 50
- AMERICAN BAR ASSOCIATION, A. M. A. resolution regarding psychiatric report of prisoners, 50; 126; 346—E; [Hoffman] 681—C
- AMERICAN BIO-CHEMICAL LABORATORY, Disulphamin, 1689
- AMERICAN BOARD FOR OPHTHALMIC EXAMINATION, 1029
- AMERICAN BOARD OF EXAMINERS OF OBSTETRICS AND GYNECOLOGY, 122; 1355
- AMERICAN BOARD OF OTOLARYNGOLOGY, 275; 1514
- AMERICAN CHILD HEALTH ASSOCIATION, 619
- AMERICAN COMMITTEE FOR THE CONTROL OF RHEUMATISM, [Osgood] ★994

AMERICAN CONGRESS OF PHYSICAL THERAPY, 541; 1029
AMERICAN DENTAL ASSOCIATION, 1267—E
AMERICAN HEART ASSOCIATION, proceedings abstracted, 438; 555
AMERICAN HOSPITAL ASSOCIATION, 873; 1753
AMERICAN INSTITUTE OF BAKING analysis of *Basy Bread*, *1194—BI*
AMERICAN JOURNAL OF CLINICAL PATHOLOGY: See Journals
AMERICAN MEDICAL ASSOCIATION, American Conference on Hospital Service, 1919
  American Medical Directory, 346—E; 421; 1514
  Annual Congress on Medical Education, Feb. 16-18, 1931, program, 1918
  Archives of Neurology and Psychiatry editorial board, Dr. Casamajor elected, 1103
  Archives of Otolaryngology editorial board, election of Dr. Ralph Fenton, 206
  Board of Trustees, election, 51; 52
  Board of Trustees, minutes of meeting, June 22-27, 1930, 206
  Board of Trustees, minutes of meeting, Sept. 25-26, 1930, 206; 1103
  Board of Trustees, minutes of meeting, Nov. 13-14, 1930, 1676
  Board of Trustees report, (V. 94) 2072; 43; 49
  Board of Trustees report, report of Reference Committee on, 42; 50
  building for storage purposes, erection, 206
  buildings owned by, fire in, 1676
  Bureau of Investigation and Marmola, 359—BI
  Bureau of Medical Economics, (V. 94) 2073; 42; 45; 1103; 1676
  By-Laws, amendment regarding expulsion of its members, 48; 49
  By-Laws amendments proposed, (V. 94) 2073
  By-Laws change with reference to induction of fellows, 42; 48; 49
  By-Laws changes with reference to formation of a Bureau of Medical Economics, 42
  Chemical Laboratory report on Albutesta, 1347
  Chemical Laboratory work on Sulphocol and Sulphocol Sol, 594
  Committee on Awards on Exhibits, report, 133
  Committee on Costs of Medical Care, support of, 45
  Committee on Entertainment, 1103; 1676
  Committee on Legislative Activities, 45; 1103
  Committee on Military Affairs and National Defense, 47, 206
  Committee on Motion Picture and Talking Film in Medicine, (V. 94) 2074; 44; 1103
  Committee on Physical Standards for Drivers of Motor Vehicles, report, 46
  Committee on Scientific Exhibit, report, 1103
  Committee on Toxic Gases, 44; 664—E; 1676
  Committee to cooperate with federal departments concerning Volstead Act, 1676
  Committee to Study Problems of Mental Hygiene and Hospitals, 1103
  Constitution, amendment to, 48
  Council on Medical Economics: See Bureau of Medical Economics
  Council on Medical Education and Hospitals, annual presentation of data on medical education in United States, *487; 535—E
  Council on Medical Education and Hospitals, hospitals approved for internships *517; 535—E
  Council on Pharmacy and Chemistry Committee on Foods, work, 43; 114—E; 206
  Council on Pharmacy and Chemistry, potency of viosterol, 1021; 1023—E; [Musselil] 1281—C
  Council on Pharmacy and Chemistry preliminary report on Avertin, 1427
  Council of Pharmacy and Chemistry preliminary report on Ventriculin, 797; 1589
  Council on Pharmacy and Chemistry report on antipneumococcus serums, 935
  Council on Pharmacy and Chemistry report on desiccated pituitary preparations, 201
  Council on Pharmacy and Chemistry report on Lydin, 201
  Council on Pharmacy and Chemistry report on Pompeian Olive Oil, 35
  Council on Pharmacy and Chemistry report on Sulphocol and Sulphocol Sol, 594
  Council on Pharmacy and Chemistry report on therapy with ovarian preparations, 64
  Council on Pharmacy and Chemistry, report on Uroselectan, [Braasch & Bumpus] *1425
  Council on Pharmacy and Chemistry report on indiscriminate use of acetanilid and barbital, 1676
  Council on Physical Therapy, Dr. Dillehunt resigns from, 1676
  Council on Physical Therapy; glasses to protect eye from glare, [Coblentz] *593
  Council on Physical Therapy joint session with American Conference on Hospital Service, 1919
  Council on Physical Therapy, rehabilitation of disabled, [Mock] *31
  Council on Physical Therapy report on Austin's Irrigators, 343
  Council on Physical Therapy, report on Davis Inhalator, 200
  Council on Physical Therapy report on Maltest X-Ray Lead Glass, 865
AMERICAN MEDICAL ASSOCIATION—Continued
  Council on Physical Therapy report on Sorensen Therapeutic Inhaler and Sorensen Therapeutic Heater, 413
  Council on Physical Therapy; sources of radiation, [Coblentz] *411
  Council on Physical Therapy, Sunlit Ultraviolet Glass acceptable, 484
  Council on Physical Therapy, ultraviolet transmitting glasses, [Coblentz] *864
  Council on Scientific Assembly, report, 46
  Detroit Session, (Vol. 94) 2069; 39—E; 41; 120
  Detroit Session determinations of professional achievement, 116—E
  dissemination of printed material by, 44
  dues, 1840; 1914—E
  election of officers, 51
  emblems, official color of ribbon for, 44
  ergot investigation, *725; 730—E
  executive session, Detroit, 45
  Exhibits, director of, Thomas G. Hull, 206
  Exhibits, report of Committee on Awards on, 133
  Ex-president, replica of medal to be placed in museum, Cleveland, 1103
  Ex-presidents, emblems for, 117
  Fellows, election, 52
  field work, 44
  fracture exhibits by state societies, 206
  history, [Sanford] *1465
  hospitals approved by, 289; 1120
  House of Delegates, Dr. Hubert Work, first speaker, address by, 42
  House of Delegates, midyear meeting, 45
  House of Delegates minutes, (Vol. 94), 2069
  House of Delegates, reader (temporary) appointed, Dr. G. Henry Mundt, 42
  House of Delegates reading clerk, (Vol. 94) 2069; 45
  House of Delegates, speaker, election, 51
  House of Delegates Speaker Warnshuis' address, Detroit Session, (Vol 94) 2069
  House of Delegates, thanks and gratitude extended to Michigan State Medical Association and Wayne County Medical Society, 53
  House of Delegates Vice Speaker, election, 51
  Hygeia, acknowledgement of gift to, 1676
  Hygeia for school teachers, 1680
  inspection of hospitals for care of mental patients, appropriation for, 50; 126; 1676
  Judicial Council report, (Vol. 94) 2072; 50
  Judicial Council report on original jurisdiction and responsibility, 45
  laboratories approved by, 289; 1120
  laboratories, views on cooperative diagnostic laboratories, 45
  Local Committee on Arrangements, address of Dr. Stevens, chairman, 52
  Local Committee on Arrangements, chairman, Philadelphia Session, 1676; 1920
  National Association of Retail Druggists, greetings to, 51
  Nostrums and Quackery, to be placed in public libraries, 206
  Officers, addresses, (Vol. 94) 2069
  Officers, election, 51
  Officers, reports, (Vol. 94) 2072
  Officers, reports, report of A. M. A. Reference Committee on, 45
  Pershing memorial for physicians who died and served in the world war, 1676; 1746—E; 1840; 1919
  Philadelphia Session, June 8 to 12, 1931, 52; 1103; 1352; 1594; 1676; 1750; 1919; 1920
  Portland Session, adoption of minutes, (Vol. 94), 2069
  President Harris address, (Vol. 94), 2070
  President-Elect, election, 51
  President-Elect Judd, 39—E
  President-Elect Judd, address, 52
  President-Elect Morgan address, (Vol. 94) 2071
  Public Health Conference postponed, 1103
  Reference Committees appointed, Detroit Session, (Vol. 94) 2070
  Reference Committee on Amendments to Constitution and By-Laws, 42; 48; 49
  Reference Committee on Credentials, report, (Vol. 94) 2069; 41; 49
  Reference Committee on Hygiene and Public Health, 41; 49
  Reference Committee on Legislation and Public Relations, report, 45; 49
  Reference Committee on Medical Education, report, 41
  Reference Committee on Reports of Board of Trustees and Secretary, report, 42; 50
  Reference Committee on Reports of Officers, report, 45
  Reference Committee on Rules and Orders of Business, report, 41
  Reference Committee on Sections and Section Work, report, 41
  registration at Detroit, 53
  representative to memorial services of Polish Medical and Dental Association, 206
  resolution from Minnesota Medical Association on training reserve officers, 1103
  resolution on appointing committee to study legislation, (Vol. 94), 2073; 45
  resolution on benefits for disabled veterans with nonservice disabilities, 48; 49
  resolution on care of veterans, 44
AMERICAN MEDICAL ASSOCIATION—Continued
  resolution on cooperation between governments in public health activities, 1676
  resolution on entertainment at annual sessions, 44
  resolution on federal aid for maternal welfare, 44; 49
  resolution on foreign bodies from toys being swallowed by children, (Vol. 94) 2073; 1103
  resolution on investigation of hospitals for mental patients, 50; 126; 1676
  resolution on investigation on problems of mental disorders and defectives, 50
  resolution on measures for checking clinical thermometers, 47; 49
  resolution on more moderate hotel rates at annual session, 46; 49
  resolution on radio broadcasting, 48; 49
  resolution on standardization of hospitals, 41
  resolution on use of motion pictures and talking films in medicine, (Vol. 94) 2074; 44; 1103
  resolution regarding formation of a Council on Medical Economics, (Vol. 94) 2073
  resolution regarding psychiatric study of prisoners, 50; 126; [Hoffman] 681—C; 346—E
  resolution regarding standardization of hospitals, (Vol. 94) 2073
  resolution that A. M. A. recommend to American Bankers Association adopt a policy urging public to save for sickness, 50
  resolution that House of Delegates discountenance and disapprove sectional caucuses pertaining to matters that are to be acted upon by this body, (Vol. 94) 2073
  resolution that prohibition and narcotic laws violate the patients right of privacy regarding his disease, (Vol. 94) 2073; 50
  resolution, that Section on Obstetrics participate in organization of American Board of Obstetrics and Gynecology, 122
  resolutions concerning legislative and other matters, 206
  Scientific Exhibit, Detroit Session, 132
  Scientific Exhibit, Philadelphia Session, 1103; 1594; 1750
  Secretary, election, 51
  Secretary report, (Vol. 94) 2072
  Secretary report, Reference Committee report on, 42; 50
  Section on Dermatology and Syphilology, minutes, Detroit Session, 127
  Section on Diseases of Children, exhibit, Philadelphia Session, 1919
  Section on Diseases of Children, minutes, Detroit Session, 124
  Section on Gastro-Enterology and Proctology, minutes, Detroit Session, 131
  Section on Laryngology, Otology and Rhinology, minutes, 123
  Section on Nervous and Mental Diseases, 1181—E
  Section on Nervous and Mental Diseases, minutes, 126
  Section on Obstetrics, Gynecology and Abdominal Surgery, minutes, 121
  Section on [illegible] 22
  Section on [illegible] utes, 130
  Section on [illegible] election of Associ[illegible]
  Section on Pathology and Physiology, minutes, 125
  Section on Pharmacology and Therapeutics, election of Associate Fellows, 52
  Section on Pharmacology and Therapeutics, minutes, 125
  Section on Practice of Medicine, minutes, 120
  Section on Preventive and Industrial Medicine and Public Health, election of Associate Fellows, 52
  Section on Preventive and Industrial Medicine and Public Health, minutes, 128
  Section on Radiology, [Hodges] *833
  Section on Radiology exhibit, Philadelphia Session, 1594
  Section on Radiology, minutes, Detroit Session, 131
  Section on Surgery, General and Abdominal, minutes, 120
  Section on Urology, minutes, 129
  Sections, history of, [Sanford] *1465
  Sections, minutes, 120
  Sections, registration by, 53
  Standing Committees, nominations for, 52
  Treasurer, election, 51
  Treasurer, nomination of Dr. Hayden, 206
  Vice President, election, 51
  Vice President Hirschman, address, 53
  Vice President Sommer, address, (Vol. 94) 2072
  Woman's Auxiliary, Detroit Session, 119
AMERICAN MEDICAL DIRECTORY, 346—E; 421, 1514
AMERICAN MEDICAL MISSIONARIES, 52
AMERICAN MEDICAL UNIVERSITY, no longer recognized as medical school, *501; 535—E
AMERICAN NEWSPAPER PUBLISHERS ASSOCIATION, dietary facts, [Stone] *711
AMERICAN PHYSICIANS AND SURGEONS: biographical directory, 614
AMERICAN PSYCHIATRIC ASSOCIATION, psychiatry in relation to crime, 50; 126; 346—E; [Hoffman] 681—C

AMERICAN PUBLIC HEALTH ASSOCIATION, 50; 362; 873; 1597
AMERICAN RED CROSS: See Red Cross
AMERICAN SOCIETY FOR CONTROL OF CANCER, 872
AMERICAN SOCIETY FOR STUDY OF DISORDERS OF SPEECH, 136
AMERICAN UROLOGICAL ASSOCIATION, 1598
  western branch of, 603
AMIDOPYRINE; Elixir of Pyramidon; Pyramidon Tablets, 1½ grains, 200
  treatment of measles, [Collier] 453—ab
AMINES, aromatic, poisoning, 739
AMINO-ACIDS in urine, 947
AMMONIA action on ciliated epithelium, [Kochmann] 238—ab
  plus dextrose, treatment of asthma, 422
  solution, linseed oil in, for invisible writing, [Langen] 1628—ab
AMMONIUM chloride acidosis, metabolic reactions to, [Morris] 694—ab
  chloride, action on ciliated epithelium, [Kochmann] 238—ab
  chloride in allergic conditions, [Beckman] ★1582
  ortho-iodoxybenzoate intravenously, possible ill effects after, [Baird] 368—ab
AMNIOGRAPHY, [Menees] 1861—ab
AMNIOTIC FLUID, iso-agglutinin content, [Hamburger] 1164—ab
  prevention of adhesions, [Lacey] 962—ab; [Giordanengo] 976—ab
AMPCO Laxative Cold Tablets, 883—BI
AMPULLA OF VATER, gallstones in, [Judd & Marshall] ★1061
AMPUTATION, interscapulothoracic, [Daland] 1619—ab
  latent gas bacillus infection complicating gangrene of lower extremity, [Linton] ★183
  of thigh, traumatic, tetanus and gas gangrene complicating, [Pennoyer] ★342
  of thigh, vertebral column disturbances after, [Karfiol] 1386—ab
  preventing by new internal secretion of pancreas discovered by Professor Frey, 676
AMYELIA, neuromuscular changes in, [Dittrich] 1376—ab
AMYLENE hydrate in Avertin, 1427
AMYLOIDOSIS of kidney, spleen and liver, [Borromeo] 697—ab
  of brain from roentgen ray, [Fischer] 1952—ab
AMYOTONIA in childhood, 939—E
AMYTAL, 1178
  sodium, in neuro-psychiatric conditions, [Bleckwenn] 892—ab; ★1168
  sodium, intravenously, produces sleep and rest in by, [Bleckwenn] 892—ab
  to prevent cocaine intoxication, 1839—E
ANAEROBES: See Streptococci
ANALGESIA: See also Anesthesia; Pain, relief
  obstetric, [Gwathmey] 1051—ab
ANAPHYLAXIS: See also Asthma; Food; Hayfever; etc.
  acute, from animal serum, [Neale] 452—ab
  allergic conditions, sanatorium treatment, [Stewart] 294—ab
  allergic coryza from sand fly, [Parlato] 558—ab
  allergic disease, paroxysmal tachycardia? [Luria] 1385—ab
  allergic joint, [Freiberg] 1048—ab
  allergic migraine, 551; [Balyeat] 891—ab
  allergic reactions after inoculation with heat-killed tubercle bacilli, [Branch] 1206—ab
  allergy after quinine sulphate treatment, [Larregla] 1137—ab
  allergy and acid-base balance, [Beckman] ★1582
  allergy and cardiovascular phenomena, [Waldbott] 294—ab
  allergy and gastric acidity, [Beckman] ★1581
  allergy, calcium in, [Cohen & Rudolph] 294—ab
  allergy clinics, European, [Sterling] 294—ab
  allergy considered as special type of acidosis, [Beckman] 294—ab
  allergy due to silk, [Taub] 294—ab, 1456—ab; [Ramirez & Eller] ★1080
  allergy in group developing postoperative atelectasis, [Wilmer] 158—ab
  allergy in tuberculosis, [Bell] 151—ab
  allergy, nature of, [Rackemann] 293—ab
  allergy, Pirquet's cutaneous, in pulmonary tuberculosis, [Parodi] 1036—ab
  allergy, skin tests in, [Feinberg] ★1665
  Association for Study of Allergy, proceedings abstracted, 293
  bacterial, of intestinal tract, [Morris] 1862—ab
  canine, immunologic paradoxes, 417—E
  Chicago Society of Allergy, organized, 1677
  cough as manifestation of, [Colmes & Rackemann] ★192; [Waldbott] 431—C
  desensitization, oral method, toward certain foods, 214
  desensitization therapy of asthma, [Petow] 1628—ab
  desensitization therapy of hay-fever, [Beckman] ★1582
  fatal, after diphtheria antitoxin injection, *[Bullowa] 1128—ab*
  idiosyncrasy to drugs, 432
  introduction of the word, 1988—C
ANAPHYLAXIS—Continued
  iodine allergy of skin in skin diseases, [Jaffé] 459—ab
  magnesium hyposulphite action in, [Boissel] 561—ab
  patch test in contact dermatitis, [Ramirez] 1455—ab
  proteose in urine excreted in [Oriel] 897—ab
  reaction, intravenous infusion of dextrose, [Askey] 371—ab
  reaction to pantopon, [Winans] ★199
  sensitivity to epinephrine at menopause, [Myers] 624—ab
  Sensitivity to Food: See Food
  sensitivity to goat's milk, 954
  sensitivity to hair, printers ink, silk, rayon, glue, etc., [Ramirez & Eller] ★1080
  sensitivity to heat and cold, 1283
  sensitivity to human serum proteins from injections of convalescent serum? 288
  sensitivity to insect powder, [Sulzberger & Weinberg] ★111; [Ramirez & Eller] ★1082
  sensitivity to quinine in shaving lotions, [Burgess] 691—ab
  sensitization tests, intradermal, scratch, indirect and contact, in dermatology, [Ramirez & Eller] ★1080
  serum sickness, [Balaban] 1871—ab
  typhoid allergy in production of roseola and splenomegaly, [Delalande] 455—ab
ANASTOMOSIS, submucous ureterovesical, [Hunner & Everett] ★330
ANATOMISTS, International Congress of, 737
ANATOMY: See also Eyes; Gasserian Ganglion; etc.
  current trends in, 663—ab
  Società Italiana di anatomia, 546
ANCYLOSTOMIASIS: See Uncinariasis
ANEMIA, achlorhydria in advancing years, [Davies] 1781—ab
  agastric vs. pernicious, [Morawitz] 976—ab
  alimentary, [Anderson] 76—ab
  alimentary, spinach, lettuce and carrot top concentrates in, [Weston] ★831
  aplastic, [Birk] 83—ab; [Arntzen] 382—ab
  bartonella, [Eliot] 73—ab; [Wills] 453—ab; [Neumann] 1871—ab; [Friedemann] 1871—ab
  cholesterol and, 596—E
  classification, attempt, [Berglund & Fallon] 72—ab
  complicating acute cervical adenitis, [Baum] ★1831
  complicating renal disorders, [Becher] 1787—ab
  complication, icterus in child, [Peljak] 1306—ab
  congenital, irradiation of spleen, [Vogt] 446—ab
  diagnosis, 717; [Murphy] 1375—ab
  erythroblastic, roentgen observations, [Mandeville] 757—ab
  grave: 2 cases, [Host] 1060—ab
  hyperchromatic, resistant to liver therapy, [Holboll] 461—ab
  in aviator pilot after flight accidents, [Midulla] 305—ab
  in children, extirpation of spleen, [Hirsch-Kauffmann] 1461—ab
  in guinea-pig nurslings, vs. milk diet, [Bilek] 1628—ab
  in infants and children, [Baty] 965—ab
  in jaundice, [Jordan] 77—ab
  in premature infants, [Silberschmidt] 1628—ab
  Lipemia in, due to hemorrhage, [Johansen] 638—ab
  myelogenic, cancerous, [Mach] 973—ab
  of pregnancy, [Nalle] 162—ab; [Bland] 300—ab
  of scurvy, [Mettier & others] ★1090
  primary and secondary, arsenic in, [Giffin & Watkins] ★591
  primary, combined degeneration of cord in, [McGowan] 1052—ab
  secondary, due to excessive radium and roentgen therapy, [Polayes & Lederer] ★407
  secondary, iron metabolism in, [Riecker] 1375—ab
  secondary, treatment, [Giffin & Watkins] ★587
  severe, blood regeneration in, [Whipple] 77—ab
  sickle-cell, [Scriver] 416—E; 1377—ab
  simple, liver diet and reticulocyte reaction in, [Wahlberg] 1140—ab
  splenic, tertiary hepatic syphilis simulating Banti's syndrome, [Korns] 368—ab
  treatment, copper, [Dwyer] 232—ab
  treatment, iron preparations, transfusions, [Rau] 1302—ab
  treatment, liver, [Eliot] 73—ab; [Whipple] 77—ab; [Wills] 453—ab; [Egorov] 461—ab; [Rau] 1302—ab
  treatment, marrow, [Borchardt] 1302—ab
  treatment of various forms, [Herz] 1876—ab
  treatment, substance in calf's liver and yeast, *1759*
  type of gastric cancer, 545
  vs. menstrual disorders in adolescents, [Lawrence] ★1148
ANEMIA, PERNICIOUS, [Meissner] 762—ab
  agastric anemias relation to, [Morawitz] 976—ab
  classification, [Berglund & Fallon] 72—ab
  clinical definition, [Holboll] 761—ab
ANEMIA, PERNICIOUS—Continued
  clinical syndromes that include achlorhydria, [McLester] ★719
  complications, acroparesthesia in, 1609
  complications, diabetes, [Bowen] ★30; [Arntzen] 382—ab
  complications, myelopathy, during liver extract treatment, [Norn] 764—ab
  complications, myxedema, [Means] 74—ab
  complications, tingling numbness and weakness in limbs, 1691
  development in patient under observation, for achlorhydria, [Davis] 628—ab
  diagnosis, [Lehartz] 240—ab
  diagnostic value of pepsin determinations, [Polland] 963—ab
  etiologic relationship of achylia gastrica, [Castle] 163—ab; 1289—ab
  etiology, infectious origin, [Blair] 1295—ab
  etiology; produced in rats by deficient feeding, [Wills] 453—ab
  immunity in, [Ford & Eliot] 73—ab
  iron metabolism in, [Riecker] 1375—ab
  of pregnancy, [Heim] 311—ab; [Wills] 1054—ab; [Volpe] 1783—ab
  of sprue, treatment, [Ashford] 79—ab
  recent studies in, 1348—E
  remission, blood regeneration during, [Riddle] 1374—ab
  remission, blood sugar during, [Riddle] 227—ab
  spinal symptoms vs. liver diet, [Lottig] 459—ab
  spinal syndrome in chronic myeloid leukemia, [Hettfleisch] 1217—ab
  thrombocyte values in, [Kristenson] 832—ab
  treatment, [Wolff] 700—ab
  treatment, blood transfusion, [Don] 1210—ab
  treatment, iron illogical, 1348—E
  treatment, liver, [Bowen] ★30; [Lehartz] 240—ab; [Lottig] 459—ab; [Davis] 628—ab [Baker] 1941—ab; [Wright] 1946—ab
  treatment, liver (aqueous extract), [Conner] 79—ab
  treatment, liver diet, mechanism of action, 1114; [Duesberg] 1704—ab
  treatment, liver, earliest changes in blood [Holbøll] 702—ab
  treatment, liver extract, effect of single massive doses, [Riddle] 441—ab
  treatment, liver extract intramuscularly, [Aubertin] 695—ab
  treatment, liver extract, nature of substance, which is effective in, [Minot & Cohn] 73—ab; [Castle] 163—ab; 1509—E; [Duesberg] 1704—ab
  treatment, liver extract, potency determination, [McGowan] 234—ab
  treatment, liver, refractory to, [Leschke] 1876—ab
  treatment, response in healthy pigeons by substances effective in, [Castle] 163—ab
  treatment, splenectomy, [Spengler] 1706—ab
  treatment, stomach and stomach extract, [Meulengracht] 462—ab
  treatment, swine stomach, [Sturgis & Isaacs] 73—ab; [Rosenow] 82—ab; [Isaacs & Sturgis] ★585; [Winge] 764—ab; [Faber] 764—ab; 797; [Meulengracht] 901—ab; [Lambin] 1055—ab; 1589; [Allerton] 1622 ab; [Decastello] 1876—ab; [Leschke] 1876 ab; [Holboll] 1954—ab
  treatment, Ventriculin, 797; 1589
ANESTHESIA: See also Analgesia; Semianesthesia
  accidents, ethyl chloride, [Henderson] 962—ab
  action, theories of, 1977—E
  alcoholic, by intravenous route, [Palma] 305—ab; [Constantin] 454—ab
  Amytal as preliminary to, 1178
  Avertin, 1427; 1430—E; ★1451
  barbital, poisoning, control by diuresis, [Johnson & others] ★576
  *tri*brom-ethanol as preoperative narcotic, [Wood] 1615—ab
  chloroform, cardiac irregularities, [Brow & others] ★715
  cocaine, preventing intoxication, 1839—E
  diallybarbituric acid, cardiac irregularities under, [Brow & others] ★715
  effect on human uterus, [Bourne] 827—ab
  ether, hemorrhage under, [Burch] 1863—ab
  for operations on gravid uterus, [Featherstone] 1616—ab, 1915—ab
  general, chemical adjuncts to, [Leake] 1615—ab
  general, physostigmine salicylate for regularization, [Garrelon] 1948—ab
  given by interns in hospitals, ★514; ★515; 535—E
  in obstetrics, [Bourne] 827—ab; [Gwathmey] *1051*—ab
  local, in fractures and dislocations, [Highsmith] 1129—ab
  local, in gyneocologic operations, [Falls] 1453—ab
  local, use of posterior lobe pituitary extracts in, [Wermer] 308—ab
  modern tendencies in, ★1451
  natural immunity reaction of blood during, *[Pfalz]* 1217—ab
  nitrous oxide-oxygen, [von Klimkó] 1513—ab
  nonvolatile substances as, 1430—E
  Pernocton, ★1451

ANESTHESIA—Continued
  procaine hydrochloride in tonsillectomy, 614
  professional anesthetists needed, 1516
  Somnoform [Henderson] 1445—C
  spinal, [Harbin] 75—ab; [Campbell] 1294—ab; [Deaver] 1699—ab
  spinal, hemorrhage under, [Burch] 1863—ab
  spinal, in abdominoperineal operation for rectal concer, [Jones] ★1172
  spinal, in Near East, [Harrison] 1863—ab
  spinal, spinal fluid changes, [Iason] 627—ab
  spinal vs. cardiac output, [Burch] 824—ab
  suppository, urethra, [Fryszmann] 1544—ab
  surgical, [Bartlett] 154—ab
ANEURYSM, aortic, treatment, [Moore & Danglade] 556—ab
  bronchial, [Jacobi] 1126—ab
  cerebral, [Steininger] 1387—ab
  cerebral, miliary, [Forbus] 1863—ab
  cerebral, perforated, [Jacobi] 634—ab
  cirsoid, of inferior colic artery, [Mesa] 238—ab
  congenital, of interventricular septum, [Cannell] 690—ab
  coronary, [Cox] 441—ab
  false, due to arrosion of internal carotid, [Tollet] 638—ab
  genicular, [Alberti] 457—ab
  multiple, of right arm, [Wilbur] 891—ab
  mycotic, fatal, of abdominal aorta that had ruptured into stomach, [Feller] 239—ab
  possible, in cranium, 1118
  pulmonary, syphilitic, [Neuburger] 458—ab
  traumatic arterial, of palmar arch, [Volkmann] 1951—ab
ANGER, effect on gastro-intestinal tract in psychoneuroses, [Moleen] ★910
ANGINA: See also Throat, sore
  agranulocytic, [Jacobsen] 448—ab; [Rudner] 1621—ab; 1428—E; [Brown] 1988—C
  agranulocytic, atypical case, [Nyfeldt] 312—ab
  agranulocytic; case report, [Roberts & Kracke] ★780
  agranulocytic, from meningococci, [Railliet] 1870—ab
  agranulocytic, immunotransfusion cures, [Fisher] 232—ab
  agranulocytic, leukopenia resembling, [Thompson] 891—ab
  agranulocytic, recurrent, [Rutledge] 558—ab
  agranulocytic, roentgen treatment, [Friedemann] 699—ab; [Burgheim] 1953—ab
  blood in, [Shea] 1455—ab
  ulcerous, blood examinations in, [Bush] 761—ab
ANGINA PECTORIS, [Hinton] 77—ab
  cardiac pain, 731—E
  diagnosis, [Lian] 375—ab
  etiology, coronary spasm, [Goldenberg] 1876—ab
  growth inhibition of hair in, [Neuda] 1785—ab
  in mitral stenosis, [Doumer] 971—ab
  including coronary thrombosis, [Wilson] 1019—ab
  pain, etiologic relation to cardiac infarction, [Coombs] 302—ab
  relation to cardiac weakness, [Kohn] 1784—ab
  surgical risk in, [Butler & others] ★85
  syphilitic, treatment, [illegible]—ab
  treatmer [illegible] 761—ab
  treatment, pancreas hormone (Kallikrein), 676
  treatment, protein, [Schmidt] 1386—ab
  treatment, surgical suppression of pressor reflex, [Danielopolu] 830—ab
ANGIOMA: See also Hemangioma; Lymphangioma; Nevus
  familial, of retina and cerebellum (Lindau's disease), [Møller] 382—ab
  intracranial, multiple, [Hosoi] 157—ab
ANGIONEUROSIS edema from abscessed tooth, [Ramirez & Eller] ★1081
  edema from heat or cold, [Duke] 293—ab
  edema, Quincke's or Bannister's disease? 684
  which follows arsphenamine, 879
ANHEMATOSIS, respiration in an atmosphere of oxygen, 875
ANHYDREMIA, effects of loss of gastric juice, 936—E
  in extensive superficial burns, [Underhill] ★852; 1430—E
ANILINE DYES, poisoning from shoe dyes, 739
  sulphemoglobinemia from, in cotton mill worker, [Harrop & Waterfield] ★648
ANIMAL EXPERIMENTATION, Animal Research Institute, which undertakes Aschheim-Zondek test, 801—E
  British hospitals working under serious handicap as result of legal restriction on, 801—E
  diet for guinea-pig, 1609
  law pertaining to, modified, Italy, 60
  McCollum balanced dry diet for laboratory albino rat, 1039
  Sharpey-Schafer's defense of, 605
  when antivivisectors flourish, 801—E
ANIMALS: See also Bears; Calf; Cats; Cows; Coyotes; Dogs; Guinea-Pigs; Hogs; Rabbits; etc.
  blood, injections, for goiter, [His] 166—ab; [Zimmer] 166—ab, 1463—ab
  [illegible] dies, zinc content, [Bertrand] 1299—ab

ANIMALS—Continued
  domestic, as carriers of yellow fever, 1518
  motor area in, [Michaels] 297—ab
  psittacosis in, [Rivers & others] ★577; ★579
  rheumatic conditions in, [Webster] 1464—ab
  thermal adjustment to external conditions, [Martin] 1458—ab
ANIMASA, treatment of essential hypertension, [Ayman] ★247
[illegible] of bursa at, 1197
[illegible] Uncinaria
[illegible] s, 1283
ANOMALIES: See Abnormalities; Colon; Duodenum; Hip Joint; Urachus; etc
ANOPHELES: See Mosquitoes
ANOREXIA: See Appetite
ANSA subclava of Vieussens, 1283
ANTHELMINTICS: See Pyrethrum
ANTHRACOSIS, symptoms, 741
  tuberculosis and, 1033
ANTHRAX, bacillus, highest dilution of disinfectant killing, [Birkhaug] ★917
  in shaving brush, Chicago, 418
  intestinal, [Solowieff] 1950—ab
  treatment, [Jofré de Villegas] 1384—ab
ANTHROPOLOGY research in South Africa, 809
  "Peking man," 1358
ANTIBODIES, antitherapeutic, 802—E
  power of lipoids to form, 674
  serodiagnostic hazard, 733—E
  solution, Huntoon's, in pneumonia, [Cecil & Plummer] ★1549
  specific, relation of protein denaturization rate to, 417—E
ANTIFREEZE mixture in automobile radiators, 664—E; 816
ANTIGENS, auto-antigens, serodiagnosis of active syphilis by, [Sciarra] 378—ab
  gonococcal, test for, in urine, [Ovtchinnikov] 1299—ab
  in amebic infections, [Craig] ★10
  infection, puerperal, 1602
  methylated, in surgical tuberculosis, [Blankoff] 1624—ab
  rhus, treatment of ivy poisoning with, 1691
  utilizable in trials of immunization against scarlet fever, 673
ANTIKAMNIA, sulphemoglobinemia from, [Harrop & Waterfield] ★647
ANTI-LEUCO-TABS, 814—BI
ANTIMENINGOCOCCIC SERUM, 594
ANTI-PHYMIN, 1365—BI
ANTIPNEUMOCOCCUS SERUM: See Pneumococcus; Pneumonia, treatment
ANTIPYRETIC: See Fever
ANTIRABIC Vaccine, Semple Method, 1913
ANTISCORBUTIC VITAMIN: See Vitamin C
ANTISEPTICS: See also Disinfectants; Disinfection; Germicides; Sterilization
  common, compared, [Birkhaug] ★917
  nostrum, Case's Antiseptic Ointment, 1607—BI
  nostrum, Mosso's Oil of Salt, 1280—BI
  nostrum, Reno's Antiseptic Wash, 1281—BI
  solutions for irrigating empyema cavity, 886
  to prevent spores in acetic acid solution used for counting leukocytes, 817
  urinary, use, [Jaeggy] 1214—ab
  value of mercurochrome in labor, [Henderson] 230—ab, 667—E; [Mayes] 1208—ab; [Ford] 1946—ab
ANTISTREPTOCOCCUS SERUMS: See Streptococcus
ANTITOXIN: See Diphtheria; Erysipelas; Scarlet Fever
ANTIVENOM serum, use in shock from intravenous rattlesnake bite, [Atchley] ★385
ANTIVIVISECTORS: See Animal Experimentation
ANTONA, Prof., in memory of, 809
ANTOXYPROTEIC ACID: See Acid
ANTRUM of Highmore: See Maxillary Sinus
  tympanicum infection vs. intestinal tract infection in infants, [Wishart] ★1084
ANUS: See also Rectum
  artificial, [Gehrels] 893—ab
  diseases, diagnosis, [Campbell] 154—ab
  fissure, diathermy for, [Howitt] 453—ab
  imperforate, [Wangensteen] 623—ab
ANXIETY, effect on gastro-intestinal tract in psychoneuroses, [Moleen] ★910
AORTA: See also Aneurysm, aortic; Aortitis
  abdominal, embolism and thrombosis, [Hamilton] 162—ab
  differentiation of syphilitic from other forms of insufficiency, [Gager] 555—ab
  fluoroscopy in acquired and congenital syphilis, [Kurts & Eyster] 410—ab
  in syphilis, [Kurtz] 1697—ab
  rupture, during puerperium, [Bohm] 1305—ab
  surgical occlusion, [Ishiyama] 700—ab
  suture, plicating, [Schaack] 311—ab
  Syphilis: See Aortitis, syphilitic
  syphilitic virus in, localization, [McMeans] 439—ab, 1697—ab
  tuberculous endaortitis, [Tavernari] 1625—ab
AORTIC VALVE, insufficiency, differential diagnosis, [Gager] 555—ab
  regurgitation, treatment, [Moore & Danglade] 556—ab
  sclerotic changes, [Drake] 1206—ab
  stenosis, [Bennett] 80—ab
  syphilitic insufficiency, [Scott] 179—ab, [illegible]—ab, 1697—ab

AORTIC VALVE—Continued
  syphilitic regurgitation with congestive heart failure, [Herrmann & Jamison] 557—ab
AORTITIS, syphilitic, [Martland] 439—ab; 1697—ab; [Reid] 442—ab; [Gager] 555—ab; [Coombs] 969—ab
  syphilitic, diagnosis, with negative Wassermann, [Levine] 1697—ab
  syphilitic mesaortitis, [Fischer] 460—ab
  syphilitic, new symptom, [Landau] 1211—ab
  syphilitic, roentgen diagnosis, [Steel] 440—ab
  syphilitic, surgical risk in, [Butler & others] ★85
APHIS lion, bites by, 1855
APNEUMATOSIS: See Lungs collapse
APOPHYSIS, incomplete fractures, 1111
APOPLEXY: See Brain hemorrhage
APPARATUS: See also Instruments
  Drinker respirator, [Murphy & Coyne] ★335; [Drinker & others] ★1219
  for determining site of inflammatory focus in underlying bone, [Kusmin] 900—ab
  for support of head in cervical vertebrae fractures, [Le Fevre & Jackson] ★1669
  for using ultraviolet rays to destroy harmful insects, 1682
  gastric feeding as new treatment for cardiospasm, [Einhorn] 228—ab
  grooved roller, to prevent loss of life in auto accidents, 1845
  inhalation, Davis Inhalator, 200
  inhalation, Lex-Zeyen, in pulmonary tuberculosis, [Siegel] 166—ab
  motorless oxygen therapy, [Cecil & Plummer] ★1263
  oral appliance for radium treatment, [Williams & Budd] ★1424
  pneumotachograph, registers velocity of respiration, [Hochrein] 83—ab
  practitioner's need of intelligent skepticism, [Christion] 373—ab
  roentgen-ray, double-disk and valve-tube rectification in, 1197
  roentgen-ray, huge customs duty imposed on, 125
  siphon system for maintaining continuous drainage, [Pottenger] ★1670
  therapeutic exercise, [Coulter & Molander] ★1342
  thrombagoge for blood transfusion, [Neubauer] 83—ab
  to diminish incidence of postoperative thrombosis, [Graithwaite] 1298—ab
  urine collection tube holder, [White] ★662
  vibratory electric current auditory apparatus to be used by the deaf, [Jellinek] 83—ab
APPEALS, proper preparation of, 46
APPENDICITIS, acute, ambulatory form, [Oudard] 631—ab
  acute, mortality, [Miller] 1210—ab
  acute, perforation of cecum by toothpick simulates, [McLanahan] ★1421
  after tonsillectomy, [Ballenger] 823—ab
  chronic, right pupil dilatation as symptom, [Buchmann] 1212—ab
  complications, ileocecal obstruction, [Speese] 1778—ab
  diagnosis, incorrect, [Walthard] 1783—ab
  enlarged spleen of appendicular origin, 609
  etiology, [Helle] 1544—ab; 1601; 1603
  hemoglobinuria in patient operated on for, [Zaffagnini] 236—ab
  mortality, [Ryan] 159—ab
  perforation symptoms, [Finaly] 1388—ab
  peritoneal syndromes at onset of, [Worms] 235—ab
  purpura simulating, [Fraser] 1299—ab
  segmental neuralgia in, [Czyhlarz] 1387—ab
  sequels, severe hepatitis with abscesses, [Tagliavacche] 1541—ab
  treatment, [Brunsgaard] 978—ab; 1986
APPENDIX epiploica, torsion, [Braine] 1075—ab
  helminthologic study, [Bacigalupo] 1541—ab
  infection in cholecystitis, [Rutherford] 1132—ab
  perforation into bladder, [Palma] 631—ab
  spirochetes, [Mazza] 1541—ab
APPETITE, anorexia and low basal metabolic rate, [Berkman] 1290—ab
  disturbances in, in artificial tropical climate, [Borchardt] 458—ab
  eat and grow thin, 1507—E
  eat and grow fat, 1182—E
  perverted, or pica, 287
APPLEGATE, ASHER T., honored, 1751
APPLES, juices for invisible writing, [Langen] 1628—ab
APPLIANCES: See under Apparatus
AQUEDUCT OF SYLVIUS obstruction in meningitis, [Lyon] ★109
AQUEOUS HUMOR, composition, 1593—E
ARACHNOID cysts, [Nicolaysen] 978—ab
  subacute combined sclerosis, [Delehanty] 230—ab
ARA-TAKATA REACTION: See Cerebrospinal Fluid
ARC mercury, radiations from, [Coblentz] ★111
ARCTIC explorers, is meat diet a menace? 866—E; [Falcon-Lesses] 1115—C; [Moulton] 1762—C
ARGO Corn Starch, 1179
ARGYLL ROBERTSON PUPILS: See Pupils
ARGYROL for prophylaxis of ophthalmia neonatorum, 1605

ARIMA, Dr., to lecture abroad, 1034
ARITINE, new name for old product, 1933
ARMS: See also Elbow; Extremities; Fingers; Forearm; Hand
  amputation, interscapulothoracic, [Daland] *1619—ab*
  applicants for automobile license shall have no disqualifying defects of, 47
  comparative blood pressures in both, [Kay] 893—ab
  right, multiple aneurysms, [Wilbur] 891—ab
ARMSTRONG, RICHARD, awarded Katherine Bishop Harman Prize, 805
ARMSTRONG'S Oxycatalyst, Halanum, 951—BI
ARMY: See also Military; Navy; Soldiers; Veterans; War; etc.
  British, physical standard, 352
  French, vaccination in, 808
  hospital, at Fort Meade, Maryland, 735
  medical services, International Assembly of, 1439
  military service, cancer in relation to, 610
  officers cannot prescribe alcohol, 351
  recruits, treatment of tuberculosis in, France, 278
  reserve officers, training, A. M. A. resolution on, 1103
  U. S., medical officer, examination for, 275
  U. S. medical officers, basic course for, 604
  U. S., officers, retired, war time rank given, 604
  U. S., reserve officers, training school for, 1105
  U. S., Surgeon General Ireland reappointed, 1436
ARNETH-Schilling formulas, [Nervi] 1383—ab
ARNETT-CROCKETT CLINIC case, saving of tax on earned income, 43; 50
ARRHYTHMIA, *extrasystole, under chloroform,* [Brow & others] ★715
  sinus, in old people, [Faulkner] 441—ab
ARSENIC, effect on trypanosomes and Spirochaeta pallida, [Miller] ★467
  in "cough drops," 1109
  in malaria, [Bass] ★989
  in optic atrophy, [Guy] ★981
  intravenous arsenicals in cardiovascular syphilis, [Hines] 438—ab, 1698—ab
  is it neurotropic? [Guy] ★982
  plus gold salts in skin tuberculosis, [Noguer-Moré] 457—ab
  poisoning in children from rat paste, [Aikman] ★1662
  treatment of anemia [Giffin & Watkins] ★591
  treatment of late nervous syphilis contraindicated, [Unsworth] ★772
  treatment of syphilis, unusual reaction after, [Black] 160—ab
  vs. kidney function in pemphigus, [Ayres] 893—ab
ARSPHENAMINE: See also Neoarsphenamine; Sulpharsphenamine
  bismuth arsphenamine sulphonate in acute syphilis, [Shivers] 1205—ab; [O'Leary] 1620—ab
  controversies regarding syphilis, [Guy] ★797
  dermatitis, [Robinson] 966—ab
  effect on trypanosomes and Spirochaeta pallida, [Miller] ★467
  injection, collapse after, [Wirz] 1304—ab
  injection, intravenous, angioneuroses after, 879
  syphilis - arsphenamine-paratherapeutic jaundice, [Gjessing] 1060—ab
  toxic injury of granulocytic apparatus, [Meyer] 701—ab
  treatment of pellagra, [Wilson] 967—ab
  use of urinary antiseptics, [Jaeggy] 1214—ab
  value in malaria, [Bass] ★989
ART, *physicians' exhibit,* Italy, 280
  national fund for promoting, France, 1758
ARTERIES: See also Aneurysm; Aorta; Arteriosclerosis; Embolism; Thrombosis; etc.
  brachial, pressure in, with sphygmomanometer, [Forti] 1136—ab
  Carotid: See also Thrombosis
  carotid, internal, arrosion, false aneurysm from, [Tollet] 638—ab
  colic, inferior, cirsoid aneurysm of, [Mesa] 238—ab
  Coronary: See also Thrombosis, coronary
  coronary disease in diabetes, [Blotner] 1618—ab
  coronary, main branches in acute rheumatic carditis, [Perry] 302—ab
  coronary, occlusion, 731—E
  coronary occlusion, T wave changes in electrocardiogram, [Hurxthal] 1940—ab
  coronary, radiographic study, [Jones] 1380—ab
  coronary, right, communication between, and coronary sinus, [Halpert] 373—ab
  coronary, sclerosis and occlusion, [Klotz] 1377—ab
  coronary spasm, [Goldenberg] 1876—ab
  Fistula: See Fistula
  hepatic, thrombosis, [Seligman] 77—ab
  injection of colloidal silver into, in phlegmon of hand, [Scollo] 305—ab
  injections, intrarenal, of tuberculin, [Long] 689—ab
  of neck, auscultation, new symptom of syphilitic aortitis, [Landau] 1211—ab
  parietal innervation in reestablishing collateral circulation, [Leriche] 972—ab
ARTERIES—Continued
  peripheral, diseases, roentgen examination, [Sgalitzer] 1059—ab
  protracted postoperative effect on, [Ipsen] 461—ab
  Pulmonary: See Arteriosclerosis
  roentgen study, [Charbonnel] 235—ab; [Chiasserini] 697—ab
  sleepy, 1228—ab
  uterine, perforation in parametric purulent sac, [Inglima] 1136—ab
ARTERIOGRAPHY: See Arteries, roentgen study
ARTERIOSCLEROSIS, clinical aspects, [Drake] 1206—ab
  coronary, [Klotz] 1377—ab
  effect on heart and systemic circulation, [Fahr] 1454—ab
  etiology, alkaline powders? 1608
  in young diabetic, [Shepardson] 79—ab
  "nail symptom" during intermittent claudication, [Schlesinger] 902—ab
  pulmonary, [Schlassi] 1783—ab; [Invernizzi] 1783—ab
  treatment, bismuth subnitrate, [Stieglitz] ★812
ARTERITIS: See Periarteritis
ARTHRITIS: See also Osteoarthritis; Rheumatism
  abortive form of Still's disease and scleroderma, [Steinitz] 562—ab
  acute rheumatic, relation to tuberculosis, [Reitter] 1629—ab
  acute, vaccine therapy, Phylacogen, [Miller] ★461
  atrophic, chronic, protein therapy, [Miller] ★465
  atrophic, use of drugs in, [Young] 1378—ab
  chronic, [Margolis] 691—ab
  chronic, basic diet for, [Snyder] 1378—ab
  chronic rheumatic, blood calcium in, [Bastos] 1513—ab
  chronic, specific vaccine treatment, [Crowe] 1018—ab
  chronic, therapeutics of iodate, 1196
  complicating meningitis, [Smithburn & others] ★776
  complications of gonorrhea in male, [McCahey] 368—ab
  concept, [Mayers] 1536—ab
  concept of the American Committee for the Control of Rheumatism, [Osgood] ★991
  conception, modern, [Cecil] 1378—ab
  deformans due to stenosing tendovaginitis, [Winterstein] 831—ab
  deformans in children [Schippers] 1218—ab
  deformans, pathogenesis, [Moulonguet] 236—ab
  etiology, Bacterium coli-commune, [Codeleoncini] 1382—ab
  hypertrophic, produced by interference with blood supply, [Goldhaft] 1289—ab
  infantile arthritism syndrome, [Jumon] 1299—ab
  infectious, chronic, ganglionectomy for, [Hench] 1378—ab
  neuropathic, synovial fluid in, [Shands] 1129—ab
  omarthritis with vasomotor disorders, [Kahlmeter] 1790—ab
  orthopedic aspects, [Osgood] ★992
  polyarthritides, etiology, [Starcke] 1060—ab
  polyarthritis (chronic) increasing? [Borgbjaerg] 1878—ab
  "rheumatism", treatment, [Shahon] 1619—ab
  rheumatoid, subcutaneous nodules in, [Dawson & Boots] ★1891
  synovial fluid in, [Shands] 1129—ab; [Forkner] 1378—ab
  traumatic, simulates apophyseal incomplete fractures, 1111
  treatment, ammonium ortho-iodoxybenzoate, intravenously, ill effects, [Baird] 368—ab
  treatment, results, [Exelby] 1378—ab
  treatment, Streptococcus cardioarthritidis products, [Small] 1048—ab
  treatment, sympathectomy, [Coughlin] 152—ab
  tuberculous, bone atrophy in, [van Haeff] 84—ab
  tuberculous, nonoperative treatment, [Lo Grasso] 1778—ab
  tuberculous, of foot and tarsus, [Sinding-Larsen] 978—ab
  tuberculous, of shoulder, [Massart] 1624—ab
  tuberculous, roentgen treatment, sarcoma after, [Backlund] 1140—ab
  tuberculous, suppurative, calf-milt diet for, [Fliegel] 1778—ab
  vertebral, vs. trauma, 809
ARTHRODESIS in shoulder tuberculosis, [Massart] *1624—ab*
ARTHROPLASTY: [Battista] 1383—ab
ARTISTS: See Art
ASBESTOSIS bodies in sputum and lung, [Lynch & Smith] ★659
ASCARIASIS, roentgen diagnosis, [Archer & Peterson] ★1819
ASCARIS, action of pyrethrum, 278
  hexylresorcinol as ascaricide, 1592—E
  intestinal obstruction caused by, 1519
  lumbricoides, isolation of chemical fractions of, 954
  lumbricoides, rare syndromes, [Ranieri] 1057—ab
  lumbricoides, ruptured empyema of gallbladder associated with, [Power] 452—ab
ASCARIS—Continued
  lumbricoides, study of, in Kentucky, 273
  lumbricoides, treatment, [Otto] ★194
  thrombus in superior mesenteric vein zone from, [Obadalek] 904—ab
ASCHHEIM-ZONDEK TEST, [Guldberg] 638—ab; [Addessi] 1382—ab; [Mack] 1866—ab
  Animal Research Institute only institution in country which undertakes, 801—E
  clinical value, [Stone] 966—ab
  hydatidiform mole as cause of positive reaction [Fanz] 1617—ab
  in chorio-epithelioma, [Ehrhardt] 832—ab
  in gynecologic patients, [Fluhmann] 753—ab
  reliability, [Stal] 242—ab
ASCITES, blood agar plates culture medium for Streptococcus epidemicus, [Pilot] ★264
  urinary, ureteroperitoneal fistula with, [Hunner & Everett] ★327
ASCOLI-Faguioli's pituitrin test, 550
ASH, acid-ash food elements, [Stone] ★711
ASPARAGUS, iodine content, [Weston] ★835
ASPERGILLUS fumigatus, a mold, asthma due to, [Bernton] ★189
  infection of hand, [Myers & Dunn] ★794
ASPER-LAX, 430—BI
ASPERMIA, 683; 1284
ASPHYXIA: See also Carbon Monoxide poisoning; Gas poisoning
  fatal in asthma, [Laubry] 971—ab
  of new-born, Drinker respirator in, [Murphy & Coyne] ★335; [Drinker & others] ★1251
  outbursts of carbon dioxide in mines, 605
  suffocation, with trachea erosion, [Culotta] 456—ab
  treatment, successful mouth to mouth insufflation, [Flagg] 446—ab
ASPIDIUM, oleoresin of, for Taenia saginata infestation, 954
ASPIRATION, biopsy by, [Martin] 961—ab
  treatment of empyema, [Mansur] 301—ab
ASPIRIN: See Acid, acetylsalicylic
ASSAULT AND BATTERY: See Medicolegal Abstracts at end of letter M
ASSOCIATION: For societies whose names begin with "Association" see also list of societies at end of letter S
  de campements de vacances pour les enfants, 1111
  for Study of Allergy, abstract of proceedings, 293
  of American Medical Colleges, 534; 873; 1356
  of American Physicians, 71
  of French physicians to aid indigent or old physicians and their families, 353
  of Medical Instruction of Paris Hospitals, 737
  of Obstetricians, Gynecologists and Abdominal Surgeons, report of Dr. *Ill on ergot* for, ★726; 730—E
  of Special Libraries and Information Bureaux, translators, 211
  pour le développement des relations médicales, 875
  professionelle international des médecine, 544; 1925
ASTHMA, 684
  acid-base balance and, [Beckman] ★1582
  bronchitis, chronic, in miners, 1033
  bronchitis, ephedrine in, [Agrelo] 1626—ab
  chronic intractable type, [Kahn] 1127—ab
  diagnosis, 1610
  diagnosis, intradermal, scratch, indirect and contact tests, [Ramirez & Eller] ★1080
  diagnosis, physical signs, [Jackson] ★639
  diagnosis, skin tests, [Joltrain] 696—ab; [Feinberg] ★1665
  eosinophilia relation to, 1119
  etiology, mold (Aspergillus fumigatus), [Bernton] ★189
  etiology of attacks, 885
  etiology, sand fly, [Parlato] 558—ab
  etiology, sense of heat or cold, [Duke] 293—ab
  fatal attack, [Vallery-Radot] 560—ab
  fatal; sudden death, [Laubry] 971—ab
  feather, skin tests in, [Feinberg] ★1668
  heart in, [Unger] 294—ab
  hyperthyroidism and, 432
  in children, 66; [Ochsenius] 379—ab; [Bray] 1131—ab; 1764
  in the young, [Beckman] ★1584
  incidence *in* postoperative atelectasis, [Wilmer] 158—ab
  incidence; much more common in boys under age of 14, 422
  infantile arthritism syndrome, [Jumon] 1299—ab
  marriage of allergics should be discouraged, [Bray] 1131—ab
  nostrum, Palatol, 951—BI
  nostrum, Sniff, 431—BI
  pregnancy with, [Williamson] 1203—ab
  protein substance from urine which produces wheals, 423
  Research Council, 422
  status asthmaticus, [Stern] 559—ab
  studies in; cough as manifestation, [Colmes & Rackemann] ★192; [Waldbott] 431—C
  treatment, acid diet, [Tiefensee] 1462—ab
  treatment, calcium, in childhood, [Ochsenius] 379—ab
  treatment, desensitization, [Petow] 1628—ab
  treatment, dextrose and ammonia, 422

ASTHMA—Continued
  treatment, epinephrine intravenously in, [Kahn] 228—ab
  treatment, narcotine, [Chopra] 1053—ab
  treatment, pollen inhalations, [Joltrain] 696—ab
  treatment, results, [Lyon] 233—ab
  treatment, sanatorium, [Stewart] 294—ab
  treatment, whisky and acetylsalicylic acid, [Beckman] ★1585
  tuberculosis and, [Díaz] 305—ab
  vital capacity in, [Feinberg] 294—ab; 1456—ab
ASTYPTODYNE, 1444—BI
ASUERO, FERNANDO, 547
ATAXIA, acute cerebellar, in chickenpox, [Borra] 305—ab
  Locomotor: See Tabes Dorsalis.
ATELECTASIS: See Lungs, collapse
ATHEROMA, senile, [Landau] 1211—ab
ATHLETICS: See also Exercise; Physical Education; Swimming; etc
  avulsion of epiphysis of spine iliac in foot races, [Löhr] 699—ab
  baseball pitchers' elbow, [Kirby] ★401
  cauliflower ear in wrestler, 817
  control of hemorrhage during boxing match, 955
  disease in athletes, [Jokl] 700—ab
  eye injuries in skiing, [Strebel] 236—ab
  menstruation and, 424; [Miller] ★1796
  subcutaneous injury of duodenum in baseball player, [Schmorell] 1218—ab
  surgeons oppose prohibition of rapier dueling, 216; 598—E
  tennis elbow, epicondylitis humeri, [Stewart] 221—C
  tuberculosis as contraindication to, 1447
ATHREPSIA: See Atrophy
ATLANTIC MONTHLY: See Journals
ATMOSPHERE: See Air
ATOPHAN, atrophy of liver from, 345—E; [Rabinowitz] ★1229
ATOPHANYL, atrophy of liver from, [Rabinowitz] ★1229
ATOQUINOL, liver atrophy from, [Rabinowitz] ★1229
ATOXYL, effect on trypanosomes and Spirochaeta pallida, [Miller] ★467
ATROPHY: See also Arthritis, atrophic; Bone; Breast; Dystrophy; Liver; Nerve, optic; Phalanges; etc.
  athrepsia in infants, insulin for, [Amici] 1872—ab
  of subcutaneous fat from insulin, [Nichols] 445—ab
ATROPINE, action on uterus in labor [Bourne] 827—ab
  effect of sympathetic stimulation on leukocyte count, 807
  for habitual vomiting in nursling, [Cherbuliez] 1997—ab
  plus ethyl alcohol in dementia praecox, [Sullivan] 1170—ab
  poisoning in children, [Aikman] ★1662
  treatment of postoperative retention of urine, [Rotthaus] 1543—ab
  use in pylorospasm in infants, 65
ATTORNEYS, heart disease in, [Horine] 1129—ab
[illegible] See Deaf
[illegible] f pneumonia, 1283
[illegible] ON, cardiotachometer in, [Boas] 901—ab
  effect on operative risk in hyperthyroidism, [Hoskin] 896—ab
  etiology and prognosis, [Cookson] 303—ab
  mortality and incidence, [Wyckoff & others] ★1246
  paroxysmal, [Hollingsworth] 1867—ab
  permanent, surgical risk in, [Butler & others] ★88
  Stokes-Adams syndrome produced by digitalis in, [Hewer] 694—ab
  treatment, quinidine, 1040
AURICULAR FLUTTER, mortality and incidence, [Wyckoff & others] ★1246
  peculiar case, [Müller] 84—ab
AUSCULTATION, new method, [Parodi] 1034—ab
  of arteries of neck; new sign of syphilitic aortitis, [Landau] 1211—ab
AUSTIN'S IRRIGATORS, 343
AUTO-ANTIGEN: See Antigen
AUTO-EROTICISM, in children, [Richards] ★1014
AUTOGENOUS [illegible] ccines
AU[illegible]
AU[illegible] Abstracts
  [illegible] end of letter M
  accident, bladder rupture result of, [De Tarnowsky] ★476
  accidents, grooved roller to prevent loss of life in, 1845
  accidents in Amsterdam compared with other large cities, 1442
  accidents: injured by one auto after another, while lying on street, 1845
  accidents, propose compensation for, 1431
  antifreeze preparations, methanol-methyl alcohol, 661—E; 816
  condition at necropsy in carbon monoxide poisoning in a garage, 1524
  drivers, accident record, 1601
AUTOMOBILE—Continued
  drivers, eyesight tests for, 46; 1682
  drivers, medical tests for, 607; 1275
  drivers, neuritis in, 1275
  drivers, report of A. M. A. Committee on Physical Standards for, drivers, 46; 47
  fatalities, eighteen deaths a day, 1599
  fatalities, France, 545
  fatalities, increase, Michigan, 601
  fatalities; 218,000 killed in thirteen years, U. S., 736
  fatalities, U. S., 56; 421; 1597
  noise in Berlin, 949
  speed limit, abolished, England, 738
  tourists, "seal of safety" campaign, 804
AUTOPSIES: See Necropsies and under [illegible] at end of letter M
[illegible] ee Serotherapy
[illegible]: See Transplanta[illegible]
AVERTIN, 1427; 1430—E; ★1451
AVIATION, Aero Medical Association of United States, 421; 1029
  accidents in, 1924
  anemia in pilot after accidents, [Midulla] 305—ab
  duodenum perforation while flying, 1599
  health of aviators, England, 1514
  physiologic factors in conquest of high altitudes, 115—E
  safety of air liners, new parachute, 211
  transport of serum by airplane from Paris to Alexandria, 424
AVITAMINOSIS: See Vitamins
AXENFELD, THEODOR, death, 676
AXILLA, menstruation in male, [Hadley] 445—ab
  reconstruction for contracture, [Garlock] 1943—ab
AYER-TOBEY TEST: See Tobey-Ayer Test
AZOOSPERMIA, 683; 1284
AZOTEMIA: See Blood, urea

B

BABINSKI REFLEX: See Reflexes
BACCALAUREATE DEGREE: See Degrees
BACILLEMIA: See also Bacteremia; Pyemia; Septicemia
  in leprosy, 1519
  tubercle, [Lowenstein] 1787—ab
BACILLUS: See also Bacteria, Bacterium; Diphtheria; Tubercle Bacillus; Typhoid
  Abortus: Bacterium
  acidophilus milk, commercial production, 65
  anthracis, highest dilution, [Birkhaug] ★917
  bulgaricus, biologic attenuation in exclusion of jejunum and duodenum, [Badile] 457—ab
  colibacillurias of digestive origin, [Jahiel] 1782—ab
  colon, anticolibacillary serotherapy, [Vincent] 1873—ab
  colon, arthritis due to Bacterium coli-commune, [Codeleoncini] 1382—ab
  colon converts bismuth subnitrate ions into nitrous acid, [Stieglitz] ★842
  colon, etiology of cholecystitis, [Williams] 1132—ab
  colon, highest dilution of disinfectant killing, [Birkhaug] ★917
  colon in drinking water, responsibility of cities, 139, 278
  colon in milk, bile fermentation test, 362
  colon infection vs. cholecystectomy, [Gordon-Taylor] 968—ab
  colon infections, [Wilkinson] 1379—ab; [Nabarro] 1379—ab
  colon infections, Pyridium for, 34
  colon, intraperitoneal injection, 1917—E
  dysenteriae Sonne, fatal epidemic enteritis due to, [Hay] 162—ab
  dysenteriae Sonne infections, [Johnston] 962—ab
  fusiformis, treatment of acute myeloblastic chloroma, [Rosenblum] 977—ab
  gangrenae-cutis, [Natirelle] 1299—ab
  Gas: See Bacillus welchii
  Leprae: See Leprosy
  Morgan's, paratyphoid-like infection due to, [Havens] 298—ab
  mucosus-capsulatus causes infections of liver and biliary tract, [Carnot] 631—ab
  mucosus-capsulatus causes nongonorrheal epididymitis, [Puhl] 84—ab
  non-lactose-fermenting, pneumonia and empyema due to, [Frazer] 896—ab
  paradysenteric, Kruse-Sonne's 609
  Paratyphosus: See Paratyphoid
  perfringens, metastatic gas phlegmon with, [Botreau-Roussel] 972—ab
  Pfeiffer, etiology of common cold, [Shibley & others] ★1553
  Pfeiffer, etiology of influenza, 674
  Pfeiffer, in chronic epidemic encephalitis, [Stewart] 891—ab
  prodigiosus colorless, identification, [Schad] 1950—ab
  psittacosis, [Peterson & others] ★171, [Rivers & others] ★577
  pulverization, mortar with cellophane guard, [Dold] 1951—ab
  pyocaneus septicemia, [Askey] 297—ab
  subtilis, highest dilution of disinfectant killing, [Birkhaug] ★917
  Typhosus: See Typhoid
BACILLUS—Continued
  vaginalis and vaginitis, [Andreitschuk] 1786—ab
  welchii, infection complicating gangrene of lower extremity, [Linton] ★183
  welchii infection in traumatic amputation of thigh, [Pennoyer] ★342
  welchii infections vs. cholecystectomy, [Gordon-Taylor] 968—ab
BACK, gallstones passed through sinus in, [McCay] 897—ab
BACKACHE, disabling, [Schauffler] ★1717
  gynecologic, pathogenesis, [Übermuth] 1463—ab
BACTEREMIA: See also Bacillemia; Septicemia
  acute throat infections and, [Ballenger & others] ★1828
  pneumococcus, [Cecil & Plummer] ★1548
BACTERIA: See also Bacillus; Bacterium; Germicides
  content of air, 1363
  dissociation, 1590—E
  growth stimulants in immune serum, 802—E
  on commercial bandages, [Konrich] 828—ab
  on paper money, 1439
  responsible for uterine sepsis, 1102—E
  spread of, by towel, [Pease] 1047—ab
  vitamin A deficiency produces favorable medium for, 798—E
BACTERICIDES: See Blood, bactericidal power; Germicides
BACTERIOLOGISTS, professional, requirements for, Germany, 811
  U. S. Government needs, 57
BACTERIOLOGY, International Congress of Microbiology, 422; 673; 1190
BACTERIOLYSIS, 673
BACTERIOPHAGE, 673
  cholera, immunization with, 873
  in surgery, [Albee] 369—ab
  specific, in urine, [Frisbee] 231—ab
  treatment, in inflammatory conditions, [Echandia] 238—ab
  treatment of typhoid, [Ruchka] 1789—ab
  treatment of urinary tract infections, [Christiansen] 382—ab
BACTERIUM abortus, milk examined for, 1107
  Brucella abortus and pasteurization, 955
  Brucella abortus in certified milk, [Hasley] 231—ab
  Brucella Abortus Infection: See Abortion, infectious; Undulant Fever
  Brucella, cultivation from stools and bile, [Amoss & Poston] ★482
  Brucella infection, intestinal, thionin and methyl violet in, [Leavell & others] ★860
  Brucella melitensis, opsonic index, [Plana] 1510—ab
  corynebacterium (C. quasisterilum), gram-negative, [Cooper] 692—ab
  granulosis and trachoma, [Tilden] 1535—ab
BACTERIURIA: See Urine
BADGE: See Emblems
BAKER INSTITUTE, 285—BI
BAKERY, Italian government experiment station for study of bread making, 917
  poisoning from cream custard, 910
BAKING POWDERS, [Kraft] 753—ab; [Lyman] 753—ab
BAKING SODA: See Sodium bicarbonate
BALDNESS: See Alopecia
BALNEOLOGY, Congress of, 62
BALTHAZARD, dean of Paris Faculty of Medicine, 424
BANCROFT, C., 1753
BAND, abdominal, use in infants, 817
BANDAGE: See Dressings
BANKERS should adopt policy urging public to save for sickness, 50
BANNISTER'S or Quincke's Disease? 681
BANTI'S DISEASE: See Anemia, splenic
BANTING INSTITUTE, opening, 1107
BANTU native, medical education of, 1112
BARBERS, forbid them to sell toilet preparations, etc., 1111
BARBITAL: See also Acid, barbituric, diallybarbituric; Amytal; Phenobarbital
  anesthesia and poisoning, control by diuresis, [Johnson & others] ★576
  compound, intravenously, venoclysis, [Henden] ★1175
  dangers involved in indiscriminate use of, 1676
  idiosyncrasy to, 432
  poisoning, Drinker respirator in, [Drinker & others] ★1251
  prevents cocaine intoxication, 1839—E
BARIUM chloride in Stokes-Adams syndrome, [Parsonnet] 1289—ab
  contrast meal in roentgen diagnosis of ascariasis, [Archer & Peterson] ★1819
  preparation, perforation of ulcerated colon from, [Kaulich] 1140—ab
  sulphate in radiographic study of coronary arteries, [Jones] 1380—ab
  sulphate interferes with digestion, [Childrey] 1374—ab
  sulphate meal, effect on intestinal protozoa, [Andrews] 1617—ab
BAROMETRIC pressure, effect on epidemics, 729
BARTONELLA muris, anemia, [Elliot & Ford] 73—ab, [Wills] 157—ab [Neumann] 1871—ab, [Friedemann] 1871—ab

BASAL METABOLISM: See Metabolism
BASEBALL pitchers' elbow, [Kirby] ★404
  player, subcutaneous injury of duodenum, [Schmorell] 1218—ab
BASEDOW'S DISEASE: See Goiter, Exophthalmic
BASIC SCIENCE Board; Law: See Medical Practice Act
BASOPHILS, substance of erythrocyte, [Davidson] 827—ab
BASY BREAD, 1194—BI
BATH ROOM, air vent in, from hygienic point of view, 1932
BATHS: See also Balneology; Mineral Waters; Swimming; Thalassotherapy
  as artificial climates: treatment of rheumatism in winter, [Fox] 233—ab
  cool, use of common compounds of carbon in disease, [McDowall] 827—ab
  hot, in intermittent claudication, [Mehrtens & Pouppirt] ★1910
  hot, in multiple sclerosis, [Lindemulder] 825—ab
  hygiene of towel, [Pease] 1017—ab
  infections resulting from bathing in river, [Troisier] 81—ab; 916
  mud, effects, 62
  Nauheim, for essential hypertension, [Ayman] ★247
  pruritus, cause and cure, [Gaines] 1129—ab
  Sun: See Heliotherapy
  treatment of arterial hypertension, [Weiss & Ellis] ★846
  whirlpool, to overcome contractures in burns, [Hilbert] ★1021
BAYER 205, effect on trypanosomes, [Miller] ★468
B C G: See Tuberculosis immunization; Tuberculosis vaccine
BEANS, green, iodine in, [Weston] ★835
BEAR meat, trichinosis in California, 40—E
  tapeworm in, [Vergeer] ★1579
BECCARI method of refuse disposal 918
BEDBUG bites, urticaria *from*, [Churchill] ★1975
  with Mexican typhus fever virus, [*Castaneda*] 1940—ab
BEDS: See also Hospitals
  screened, hazard from lid, [Millikan] 816—C
BEDWETTING: See Urine, incontinence
BEEF bone graft, intramedullary, in open reductions of clavicle, [Brockway] 825—ab
  bone marrow for secondary anemia, [Giffin & Watkins] ★589
  liver, dried, mineral content, [Weston] ★836
BEEMAN FOUNDATION: See Foundations
BEER, 8 per cent alcohol allowed, Belgium, 1602
BEES, *honey, venom*, 939—E
BEETS, iodine in, [Weston] ★835
BEHAVIOR, common causes of childhood misfitting, [Richards] ★1013
BEIT Fellowships: See Fellowships
BEL-CAPS, 952—BI
BELLADONNA poisoning in children, [Aikman] ★1662
BELLEVUE-Yorkville Health Demonstration campaign against venereal disease, 1106
BELTS, elastic reducing satisfactory? 883
BENEDICT, FRANCIS G., honored, 1353
BENZENE derivatives of intestinal putrefaction in etiology of cancer, [Grandjean] 1540—ab
  iritis as an industrial disease in cleaner and presser, 551
  poisoning, after neoarsphenamine injection, [Black] 160—ab
  poisoning in rubber goods factory, 215
BENZIDINE reaction in occult hemorrhage in intestinal cancer, [Dahl-Iversen] 702—ab
BENZOYL peroxide for poison ivy intoxication, [Lamson] ★663; [Stevens] 1762—C
BENZYL benzoate and succinate for essential hypertension, [Ayman] ★247
BEQUESTS and donations, 136; 809; 1108
BERGAMOT, oil of, painting with, for vitiligo, 955
  oil of, perfumes and pigmentation, 40—E
BERIBERI, work of Eijkman on 1673—E
  incipient dietary deficiency in child, 1759
BERLINER medizinische Geselschaft, 70th anniversary, 1684
"BERLOCK" dermatitis, [Lane & Strauss] ★717
BERNARD, BERNARD, fined, 272
BERNARD, CLAUDE, theory of sugar center not substantiated, [Hiller] 459—ab
BERNARD-PIEDELIEVRE AND CLAUDE TEST, 550
BERTRAND-FONTAINE, Madame, 353
BESREDKA reaction in tuberculous salpingitis, [Douay] 759—ab
  reaction in tuberculosis, [Dufour] 1997—ab
  vaccine in whooping cough, [Kramsztyk] 1787—ab
BETALACTOSE (B-Lac) and intestinal flora of infant, 222
BETTER BUSINESS BUREAU and Marmola quackery, 359—BI
BETTER HEALTH FOUNDATION: See Foundations
BEVAN, ARTHUR DEAN, A. M. A. medal presented to, 118
BEVERAGES, Alcoholic: See Alcohol; Beer; Whisky; Wine; etc.
BEZOAR: See Phytobezoar
BICOLORED guaiac test for spinal fluid, [Greenfield] 1132—ab
BICYCLE rider, efficiency of human muscles, 799—E
BILE, acholic cachexia, [Takasu] 700—ab
  brucella cultivated *from*, [*Amoss & Poston*] ★482
  effect on gastric glands secretion after cholecystogastrostomy, [Manuilow] 240—ab
  fermentation test for B. coli in milk, 362
  lack of, in intestine in obstructive jaundice, [Ivy] ★1070
  pigments, relation of spleen to jaundice, [Payne] ★1064
  salts, action on icteric bradycardia, [Thomas] 164—ab
  salts, insulin-sodium desoxycholate mixture given enterally, [Van der Reis] 902—ab
  secretion in peptic ulcer, [Berg] 230—ab
  stasis in gallbladder treatment, [Erdheim] 460—ab
  toxicity of contituents, [Ivy] ★1071
BILE DUCTS calculi, hepatic complications, [Abrahamsen] 1060—ab
  calculi in Vater's ampulla, [Judd & Marshall] ★1061
  cyst, [Wilson] ★399
  dilatation, idiopathic, [Djorup] 638—ab
  drainage in pancreatitis, [Santy] 1624—ab
  draining, [Mandl] 1544—ab
  inflammation (cholangeitis), sequel of biliary tract infection, [Deaver] ★1641
  inflammation with liver atrophy, [Czygan] 167—ab
  surgery, death after, cause, [Stanton] 295—ab
BILIARY TRACT: See also Bile Ducts; Gallbladder; Liver
  atresia, congenital, [Baastrup] 761—ab
  calculi, [Clute] ★1568
  calculi, biliary peritonitis complicating, [Masciottra] 1542—ab
  infection, sequels, [Deaver] ★1641
  infections, Bacillus mucosus-capsulatus, [Carnot] 631—ab
  surgical diseases caused by parasites, [Fin*kelstein] 829—ab*
BILIRUBIN, formation in spleen, [Payne] ★1065
  administration effect on blood, [Popper] 1785—ab
  in Blood: See Blood
  index, 917
BILLINGS, FRANK, A. M. A. medal presented to, 118
  established fellowships in Rush, (correction) 136
BILLINGS LECTURE, nonspecific therapy, [Miller] ★464
BILOPTIN, liver atrophy from, [Rabinowitz] ★1229
BINOCULAR loupe, [Lahey] ★1975
BIOGRAPHY, *American Physicians and Surgeons*, 614
  fifty dollars for yours in print, 209
BIOLOGIC PRODUCTS: See Serums, Vaccines
BIOLOGIST, U. S. government needs, 601
BIOLOGY, basis of human nature, 1237—ab
  International Congress of, 356
BIOPSY by needle puncture and aspiration, [Martin] 961—ab
  effect on malignant tumors, [Hanser] 1951—ab
BIRTH: See Labor; and Medicolegal Abstracts at end of letter M
  notification of, ruling, Australia, 1981
  Rate: See Vital Statistics
BIRTH CONTROL, 1681
  British Medical Association discusses, 513
  churches and, England, 874; 1516; 1757
  clinics at large hospitals, India, 1358
  clinics, experience, 1924
  condemned, 1516
  Congress of League for Sexual Reform on, 1191
  how much can one depend on amputation of cervix to prevent conception? 1011
  irritation of penis from contraceptive vaginal suppository, *1609*
  municipal, consultation office at Shiba Park, Tokyo, 877
  Science 'Publishing Company, Inc., 814—BI
  steady use of contraceptive sheaths cause chronic engorgement of prostate? 684
BISMARSEN, in syphilis, [Shivers] 1205—ab; [O'Leary] 1620—ab
BISMUTH, Ampules Emulsion Mesurol, 20 per cent, 1cc., *313*
  arsphenamine sulphonate in syphilis, [Shivers] 1205—ab; [O'Leary] 1620—ab
  clinical excretion, [Haslik] 1205—ab
  effect on trypanosomes and Spirochaeta pallida, [Miller] ★467
  in perspiration, [Schaffer] 1533—ab
  injection in occlusions of lumen of fallopian tube, [Watkins & Menne] ★1647
  pneumonoconiosis or pulmonary hemorrhage *from*, 684
  potassium bismuth tartrate for syphilis, [Shivers] 1205—ab
  Quinine Bismuth Iodide, 797
  quinine bismuth iodide and sodium potassium bismuthyl tartrate, Tartro-Quiniobine, 797
  radioactive, injection into animals, which was activated in the tumor, 142
  salicylate, excretion, [Hanzlik] 1533—ab
  sodium *bismuth thioglycollate, Thio-Bismol*, 200
BISMUTH—Continued
  sodium potassium bismuthyl tartrate, 797
  subcarbonate applied to tongue for lateral moving picture of person speaking, 217
  subnitrate, for hypertension, [Stieglitz] 368—*ab*; ★842
  subnitrate, oxytocic action, 682
  tartrate intravenously sudden death following, [Curtis] ★1588
BISMUTHYL tartrate, sodium potassium, 797
BISTOURY, electric, in gastric surgery, [Guillemin] 1459—ab
BITE: See also Aphis; Bedbugs; Rattlesnake; Snakes
  human, hand infection from, [Mason] 1913—ab
B-J-C CAPSULES, 1688—BI
B-LAC and intestinal flora of infant, 222
BLACK FLAG, *dermititis from, [Sulzberger &* Weinberg] ★111
BLACKWATER FEVER, [*Tolleson*] 75—ab
BLADDER: See also Urinary Tract
  calculi, endovesical treatment, [Keller] 901—ab
  cancer, diathermy for, [Kretschmer] ★1728; [Boeckel] 1870—ab
  cancer, irradiation and diathermy for, [Smith] ★1730
  cancer, papillary, intravenous urography with uroselectan, [Jaches] ★1411
  cancer, pathology, [Caylor] ★1736
  cancer, radium for, [Barringer] ★1734
  colibacillurias, [Jahiel] 1782—ab
  cord, presacral nerve resection in, [Learmonth] 1866—ab
  cystoscopic appearance of cystoceles, [Van Duzen] 626—ab
  cystostomy, dangers, 1845
  disorders, diathermy in, [Büben] 1625—ab
  ectopic, operation for, [Roloff] 1305—ab
  Fistula: See Fistula
  foreign bodies, pessaries and candles, [Dickinson] 286—C
  Giardia intestinalis in, [Malamud] 681—C
  obstruction not due to prostatic hypertrophy, [Carroll] 156—ab
  perforation of appendix into, [Palma] 631—ab
  rupture, [De Tarnowsky] ★476
  surgery, bone formation in cystostomy scar, [Rolland] 235—ab
  surgery in rupture of, [De Tarnowsky] ★476
  surgery, technic of submucous ureterovesical anastomosis, [Hunner & Everett] ★330
  tuberculosis, 1032
  tumors, chemocoagulation by concentrated trichloracetic acid, [Stutzin] 1545—ab
  tumors, malignant, treatment, [Stutzin] 1545—ab
  tumors, papillomas, [Caylor] ★1736
  tumors, production, [Schär] 1139—ab
  ureter reimplanted into, [Dannheisser] 1781—ab
  urine escapes from, through umbilicus, [White & *Holm*] ★393
BLANCO, ALFREDO E., ephedrine and habit formation, 731—E
BLASTOMYCOSIS of prostate, epididymis and leg, [Lewis & others] (*correction*) *56*
  of spine, [Jones] 300—ab
  scalpel surgery for, [MacKee & Stone] ★1317
BLAND Pills, poisoning from, [*Aikman*] ★*1662*
BLEEDING: See Hemorrhage
BLIND, welfare, League of Nations report 117—E
BLINDNESS, causes among Chinese, [Chang] 1538—ab
  hazard from Methanol, 661—E
  Mexican Congress on Prevention of, 1435
  National Society for Prevention of, 1356; 1514
  paralysis of motor nerves of eye with, [Cornil] 1211—ab
BLISTER, formation, iodine allergy of skin with, [*Jaffé*] 459—ab
BLOOD: See also Medicolegal Abstracts at end of letter M
  acetone in fasting children, [Salomonsen] 1773—ab
  acetonemic children, olive oil in diet, [de los Terreros] 1782—ab
  acetonemic vomiting, [Curschmann] 697—ab; [Marfan] 898—ab; [Curschmann] 976—ab; [Brückner] 1139—ab; [Salomonsen] 1306—ab
  Acid in: See Blood, lactic acid
  agglutinin content in recipient of many transfusions, [Polayes & Lederer] ★407
  albumin, in hypertension and hypotension, [Dumas] 1623—ab
  albumin in pulmonary tuberculosis, [*Dufourt*] 1035—ab
  alkali reserve in cardiac decompensation, [Kewdin] 562—ab; 632—ab
  alkalinity in eczema, [*Bikkenin*] *1546—ab*
  bactericidal potency of irradiated rabbits, [Marginesu] 1998—ab
  bilirubin administration effect on, [Popper] 1785—ab
  bilirubin estimations, value, in cerebrovascular accidents, [Cheney] 444—ab
  bilirubin in puerperal infection, [Woskressenski] 1388—ab
  bilirubin, maternal-fetal, [Hinglais] 1870—ab

BLOOD—Continued
bilirubin, van den Bergh test, [Snider] 891—ab; [Blankenhorn] ★1066; 1747—E
bromide in, [Wagner & Bunbury] ★1725
calcium, diffusible, in jaundice, [Gunther] 229—ab
calcium, diffusible, in new-born, [Ray] 1373—ab
calcium, effect of large doses of viosterol, [Hess & others] ★320
calcium in chronic rheumatic arthritis, [Bastos] 1543—ab
calcium in diabetic retinitis [Lawrence] 1701—ab
calcium in epilepsy, [Parhon] 560—ab
calcium in jaundice, 732—E; [Ivy] ★1071
calcium in pneumonoconiosis, [Skokoloff] 1533—ab
calcium in pregnancy, after labor, etc., [Damblé] 306—ab
calcium, interrelationship between spleen and parathyroid, 937—E
calcium (ionized), in tuberculosis, [Varela] 1876—ab
calcium regulation and parathyroids, 356
calcium vs. ultraviolet radiation in infants with tetany, [Bakwin & Bakwin] ★396
calcium vs. viosterol, [Kaminsky] 622—ab
carbon dioxide in, deficiency in postoperative shock, etc., [Henderson] ★572
carbon dioxide in internal jugular, etc., [Lennox] 1939—ab
carbon dioxide vs. pial vessels, [Wolff] 296—ab
carotinemia, [Miller] 1377—ab
Cells: See also Erythrocytes; Leukocytes
cells, forms (unusual) in acute leukemia, [Bowcock] 447—ab
cells, human, insulin inactivation by, [Karelitz] 79—ab
changes in chickenpox, [Carrara] 1540—ab
changes in liver treatment of pernicious anemia, [Holbøll] 702—ab
changes in nervous diseases, [Schroder] 1546—ab
changes in Rous sarcoma, [Sadi] 1788—ab
changes in typhoid, paratyphoid, undulant fever, and rubeola, [Nyefeldt] 764—ab
chemical changes in ileus, [Brandberg] 311—ab
chemical composition, normal, [Lickint] 635—ab
chemical constituents after gastrectomy, [Walters] ★103
chemical data, interpretation, [Woodyatt] 71—ab
chemistry analysis, simplified method, [Mathieu] 1130—ab
chemistry in leprosy, [Morales-Otero] 896—ab
chemistry, postmortem, in renal disease, [Polayes] 1127—ab
chlorides, and burns, [Underhill] ★852; 1430—E
chlorine in plasma and erythrocytes, [Ribadeau-Dumas] 1055—ab
cholesteremia level in paratherapeutic icterus, [Vauthey] 1054—ab
cholesterol and anemias, 596—E
cholesterol, maternal-fetal, [Hinglais] 1870—ab
cholesterol vs. radiation in malignant disease, [Mattick] 963—ab
cholesterol vs. ultraviolet irradiation, [Malczyński] 439—ab
circulating hormone, "kallikrein," 676
Circulation: See also Capillaries; Pulse; Vasomotor System; etc.
circulation and gravity, 1837—E
circulation, arteriovenous fistula effect on, [Ellis] 443—ab
circulation, artificial, kept up by joining head of dog to system of pumps and apparatus, 1519
circulation, coincident depression in acapnia, [Henderson] ★574
circulation, collateral, reestablisment, [Leriche] 972—ab
circulation disturbances in diabetes, [Black] 152—ab
circulation, how long after compression of cord will a six month fetus in utero live? 1039
circulation, in heart disease, 1025—E
circulation, mechanism in hypertension, [Weiss & Ellis] ★847
circulation of feet in diabetes, [Starr] 891—ab
circulation, return, rôle in syncope, [Laubry] 1131—ab
circulation, systemic, vs. arteriosclerosis, [Fahr] 1154—ab
circulation, venoconstrictor action of carbon dioxide on, [Gollwitzer-Meier] 458—ab
circulatory actions of digitalis and strophanthus, [Tainter] 448—ab
circulatory correlations, hepatic vein reactions in, 686—E
circulatory disorders in rheumatic diseases, [van Breemen] 1790—ab
circulatory disorders of extremities, "nail symptom," [Schlesinger] 902—ab
citrated, intravenously, [Hendon] ★1175
coagulation in obstructive jaundice, [Ivy] ★1071

BLOOD—Continued
coagulation, liver and fibrinogen, 869—E
coagulation time, decreasing, calcium vs. dextrose for, [Ravdin] 369—ab
coagulation time, determination, [Lampert] 83—ab
concentration in burns, [Underhill] ★852; 1430—E
Convalescent: See Serum, convalescent
Corpuscles: See Blood cells
count, Arneth-Schilling formulas in diphtheria, exanthemas, [Nervi] 1383—ab
count in agranulocytosis, [Roberts & Kracke] ★780
count, Schilling, in acute infections in childhood, [Rogatz] 689—ab
cultures in acute rheumatic fever, 417—E
cyst, true, of neck, [Calzolari] 899—ab
defibrinated, fresh, active principle, preparation, [Zipf] 238—ab
defibrinated, fresh, pharmacologic action, [Zipf] 238—ab
diastase, determination, [Bernhard] 1217—ab
Diseases: See also Anemia; Leukemia; Polycythemia; etc.
diseases, radium therapy, [Jagić] 763—ab
diseases, roentgenotherapy, 608
diseases vs. mouth mucosa diseases, [Lindemann] 1303—ab
electrolytes in diabetes insipidus, [Gradwohl] 1951—ab
examinations in ulcerous angina, [Bush] 764—ab
extravasated into body cavities, [Heusser] 1139—ab
fats, 269—E
fats, alimentary hyperlipemia, [Hejda] 445—ab
fats, lipemia in anemia due to hemorrhage, [Johansen] 638—ab
fibrinogen and liver, 869—E
formation, effect of vitamin C rich food on, [Mettier & others] ★1089
formation in atmosphere of oxygen, 875
"graft," autoplastic, in bone cavities, [Leo] 761—ab
grouping, paternity tests by, [Wiener] 681—C; [Smith] 1195—C; 1684; [Mau] 1704—ab
groups, 674
groups A and B donors for recipient of many transfusions, [Polayes & Lederer] ★407
groups, A' and A'B, new types, [Thomsen] 382—ab
groups, determination, desiccated human serum for, [Eisler] 309—ab
groups, differentiation of organism, [Thomsen] 382—ab, 462—ab, 638—ab, 764—ab
groups, Dr. Landsteiner wins Nobel Prize, 1435; 1749—E
groups, racial, 1927
groups II (A) donor to group III (B) recipient of transfusion, [Burnham] 1375—ab
guanidine in yellow fever, [Findlay] 1537—ab
heliotherapy effect on, [Bungenberg de Jong] 977—ab; [Hoeffel] 1373—ab
Hormones: See Blood, circulating hormone; Blood, sex hormone
hormonotherapy with blood of pregnant woman, [Maurizio] 828—ab
hydration vs. plasma proteins, [Bruckman] 449—ab
immunity reaction during anesthesia, [Pfalz] 1217—ab
in cancer patients, [Greeff] 965—ab
in pulmonary tuberculosis vs. Herrmannsdorfer's diet, [Mecklenburg] 900—ab
in trichinosis, [Carter] ★1420
in various anginas, [Shea] 1455—ab
indicanemia in renal insufficiency, 206—E
Injections: See Hemotherapy
lactic acid in cancer and hepatic disorders, [Jervell] 382—ab
lactic acid increased in pregnancy, [Hoffmann] 1626—ab
leukocytes in, of children, [Erlich] 1213—ab
nitrogen content in child, vs. feeding, [Simonini] 1057—ab
occult, dark tarry blood in feces sign of bleeding high up in intestinal tract, 1691
occult hemorrhage in intestinal cancer, [Dahl-Iversen] 702—ab
oxygen-carrying power, Halanum, 951—BI
oxygen, effect on pial vessels, [Wolff] 296—ab
oxygen in internal jugular, etc., [Lennox] 1939—ab
phosphorus at different ages, [Bullock] 1773—ab
phosphorus in children, [Fedorov] 1789—ab
phosphorus in health and disease, [Kay] 452—ab
picture, diagnosis of pneumococcus peritonitis from, [Gibson] 1289—ab
picture, Schilling's hemogram in health and disease, [Gazzotti] 1056—ab
pituitary hormone in gynecologic patients, [Fluhmann] 753—ab
Plasma: See Serum
platelets and spleen, 537—E
platelets changes after operations and injuries, [Willinsky] 234—ab

BLOOD—Continued
platelets, improved indirect method for counting, [Olef] 1939—ab
platelets in pregnancy and puerperium, [Bland] 1203—ab
platelets, Kristenson's method modified for direct counting, [Baquero Gil] 165—ab
platelets, symptomatic thrombopenic conditions, [Akerrén] 1546—ab
platelets, thrombocyte values in pernicious anemia, [Kristenson] 832—ab
Proteins: See also Blood albumin
proteins and blood calcium in jaundice, 732—E
proteins and malnutritional or cachectic edema, [Bruckman] 449—ab
proteins, jaundice, [Gunther] 229—ab
proteins (plasma) vs. blood hydration and malnutrition, [Bruckman] 449—ab
proteins (serum) and edema, 1914
regeneration in anemia, [Whipple] 77—ab; [Riddle] 1374—ab
reticulocytes, how to determine, 1117
reticulocytes in pernicious anemia, 1348—E
retroplacental, iso-agglutinin content, [Hamburger] 1464—ab
roentgen rays effect on, 1198
sedimentation in rheumatic infection, [Ernstene] 444—ab
sedimentation rate during tuberculin shock in juvenile tuberculosis, [Gatto] 437—ab
sedimentation rate in mentally diseased, [Petersen] 462—ab
sedimentation rate index of hemorrhagic tendency in jaundice, [Linton] 158—ab
sedimentation reaction in cancer, [Adams-Ray] 702—ab
sedimentation reaction in fractures, [Madlener] 900—ab
sedimentation reaction in rheumatoid and ostearthritis, [Dawson] 1048—ab
sedimentation reaction (normal) and active tuberculosis, [Torning] 761—ab
sedimentation speed in thyrotoxicoses, [Hufschmid] 1461—ab
sedimentation test in adnexa disease, [Nielsen] 832—ab
sedimentation test in obstetrics and gynecology, [Nystrom] 621—ab; [Dodds] 758—ab; [Jackson] 1869—ab
sedimentation test in pelvic disorders, [Kyger] 153—ab
sedimentation test in pulmonary tuberculosis, value, [Davies] 435—ab
sedimentation test, theories, [Levine] 1878—ab
Serum: See Serum
sex hormone in, Frank test for, [Spencer] 1203—ab
smear agglutination tests in tularemia, typhus and undulant fever, [Lewis] 559—ab
smear, staining, [Brinnitzer] 977—ab
smears and differential counting of leukocytes, [Plonskier] 1463—ab
splenectomy effect on, in children, [Salazar de Souza] 1211—ab
stream, tubercle bacillus in, 675
stream, venoclysis, [Hendon] ★1175
sugar, arteriovenous difference, [Glassberg] 1939—ab
sugar concentration after dextrose by rectum and by hypodermoclysis, 146; 1283
sugar content and insulin injections, [Gottschalk] 379—ab
sugar curve vs. insulin intravenously, [Hess Thaysen] 1954—ab
sugar curves in gallbladder inflammations, [Eitel] 1541—ab
sugar, determination, [de Jongh] 978—ab; [Bernhard] 1217—ab
sugar during remission in pernicious anemia, [Riddle] 227—ab
sugar, glycogenic functioning of liver in traumatic shock, [Scarpello] 1460—ab
sugar, hyperglycemia (alimentary), mechanism of, [Conti] 301—ab
sugar, hyperglycemia of diabetes vs. that of chronic nephritis, 1118
sugar, hyperglycemia with acute pancreas necrosis, [Bernhard] 381—ab
sugar, hypoglycemia (insulin), caffeine for, [Popper] 1161—ab
sugar, hypoglycemia (spontaneous hypophyseal), [Wilder] 167—ab
sugar, liver extract effect on, [Bowen] ★30
sugar reaction in early infancy, [Styrikovich] 1789—ab
sugar regulation vs. x-rays, [Held] 1952—ab
sugar test (morphine) in suprarenal insufficiency, [Targowla] 1212—ab
sugar, threshold value, in nephroses, [Fell] 1658—ab
sugar vs. photodynamic substances, [Monasterio] 437—ab
sulphemoglobinemia, [Harrop & Waterfield] ★647
Supply: See also Blood stream; Blood quantity
supply, hypertrophic arthritis induced by interference with, [Goldhaft] 1289—ab
supply, increased, rate of growth in, [Harris] 373—ab
Tests for Paternity: See Blood grouping
tuberculous ultravirus in, of patient with tuberculids, 1031

BLOOD—Continued
  Types: See Blood groups
  ultraviolet irradiation effect on [Malczynski] 459—ab; [Hoeffel] 1373—ab
  urea, azotemia, as postoperative reaction, [Berceanu] 1381—ab
  urea, azotemia without renal lesions, [Roch] 1214—ab
  urea, azotemic nephritis in typhoid, [Lemierre] 1997—ab
  urea estimation outfit, Hench-Aldrich, 1366
  urea nitrogen in cutaneous and venous blood, [Neale] 1864—ab
  uricacidemia in diabetes, [De Candia] 1300—ab
  velocity changes vs. posture, [Bock] 449—ab
  viosterol effect on, [Hess and others] ★319, ★321; [Kaminsky] 622—ab
  viscosity in hypertension, [Harris] 970—ab
  viscosity in tuberculin shock, [Gatto] 632—ab
  Volume: See also Blood supply
  volume, fetus at term, including umbilical cord and placenta, 1039
  volume in dysmenorrhea, [Miller] ★1796
  volume, loss of, shock from, [Atchley] ★385
  volume, reduction in thrombo-angiitis obliterans, [Silbert] 229—ab
  volume vs. posture, [Bock] 449—ab
  Vomiting of: See Hematemesis
  Wassermann test on, from umbilical cord of new-born infants, 683
  water content, anhydremia, effects of loss of gastric juice, 936—E
  water content, anhydremia in extensive superficial burns, [Underhill] ★852; 1430—E
  Withdrawal: See Bloodletting
BLOOD PRESSURE after spinal cord section, [Leriche] 1623—ab
  allergy and, [Waldbott] 291—ab
  Arterial: See also Blood Pressure, high
  arterial, in pulmonary tuberculosis, [Diez Fernández] 1137—ab; [Leuret] 1214—ab
  at high altitude (28,150), 1030
  behavior, in mental exertion, [Fischer] 239—ab
  changes, menopausal, [von Magyary] 1786 -ab
  comparative, in two arms, [Kay] 893—ab
  determination, grypotonography, [von Recklinghausen] 170—ab
  determination of venous, 1183—E
  determination, sound phases in, 222; 886
  diastolic, after exertion, [Schellong] 1217—ab
  diastolic, reading, 1933
  during epileptic seizure, [Hendriksen] 1706—ab
  epinephrine potency and, 1979—E
  fresh defibrinated blood action on, [Zipf] 238—ab
  high, albumin in blood, [Dumas] 1623—ab
  high, arterial, bismuth subnitrate in, [Stieglitz] ★812
  high, arterial, evaluation of prognosis, [Stieglitz] 1127—ab
  high, blood viscosity in, [Harris] 970—ab
  high, causes, [Secher] 638—ab; [Bell] 1451—ab
  high, daily and monthly rhythm in, [Brown] 447—ab
  high, diastolic, determinations, significance, 1118
  high, diastolic essential, significance, [McCloud] 372—ab
  high, effect of internal secretion of pancreas (kallikrein), 676
  high, emotional, [Stieglitz] 368—ab
  high, epinephrine test in, [Jensen] 1125—ab
  high, essential, [McCloud] 372—ab; [Keith] 1454—ab
  high, essential, histologic changes in renal glomerulus, in, [McGregor] 157—ab
  high, essential primary and permanent arterial, [Monier-Vinard] 1133—ab
  high, essential, therapeutic results evaluated, in symptomatic relief, [Ayman] ★246
  high, etiology, [Waller] 1701—ab
  high, institutional physical therapy in treatment, [Watkins] 559—ab
  high, paroxysmal, in suprarenal medullary adenoma, [Labbé] 303—ab
  high, patients desired for study by University of Chicago, 1677
  high, permanent arterial, contradictory results from suprarenalectomy, 1031
  high, potassium thiocyanate effect on, [Saleeby] 965—ab
  high, pregnancy, albuminuria, edema, etc., [Huggins & Bucy] ★653
  high, relation to surgical risk, [Butler & others] ★89
  high, retinal vascular changes in, [Wagener] 1454—ab
  high, so-called malignant, [Murphy] 691—ab
  high, structural changes in kidneys in, [Narr] 156—ab
  high, symptomatology, [Riseman] 444—ab
  high, syphilis relation to, [Horine & Weiss] 555—ab; [Horine] 1697—ab
  high, treatment, 433; [Weiss & Ellis] ★846
  high, variations in, 679—E
  in brachial artery compressed by sphygmomanometer, [Forti] 1136—ab
  in normal child, [Chabrun] 1782—ab
  low, blood albumin in, [Dumas] 1623—ab
  low, in superficial burns, [Underhill] ★852
  low, shock cause of, produced by muscle injury, 204—E
BLOOD PRESSURE—Continued
  meat diet a menace? 866—E; [Falcon-Lesses] 1445—C; [Moulton] 1762—C
  suprarenal cortical insufficiency, [Saphir & Binswanger] ★1007
  variations, 666—E
  variations after roentgen irradiations, [Pausdorf] 1953—ab
  vegetarian diet effect on, [Saile] 902—ab
  venous, in artificial pneumothorax, [Bosviel] 1212—ab
  venous, measurement, 1183—E
  venous, vena cava reaction in, [Allen] 1627—ab
  vital capacity and, [Allen] 227—ab
BLOOD TRANSFUSION, apparatus (thrombagoge), [Neubauer] 83—ab
  Donor Bureau, 1842
  experiences, [Majanz] 700—ab
  experiments on onset of labor, 516
  for inflammation of digestive organs, 1601
  from group II (A) donor to group III (B) recipient, [Burnham] 1375—ab
  gas poisoning and, [Sennels] 312—ab
  in acute infectious diseases, [Landon] 1531—ab
  in agranulocytosis, [Fisher] 232—ab; [Roberts & Kracke] ★780
  in anemia in children, [Rau] 1302—ab
  in Bright's disease, [Mosenthal] 71—ab, 1531—ab
  in cure of aplastic anemia, [Birk] 83—ab
  in malarial hemoglobinuria, [Barnett] 967—ab
  in medical shock, [Atchley] ★385
  in pernicious anemia, [Don] 1210—ab
  in shock from intravenous rattlesnake bite, [Atchley] ★385
  making it safe, [Schöne] 1952—ab
  recipient of many transfusions, [Polayes & Lederer] ★107
  venoclysis, [Hendon] ★1175
BLOOD VESSELS: See also Arteries; Capillaries; Vasomotor Mechanism; Veins; etc.
  aberrant renal, and uropyonephrosis pathogenesis, [Lozzi] 1703—ab
  as possible source of visceral pain, [Livingston] 113—ab
  cerebrovascular accidents, value of blood bilirubin estimations in, [Cheney] 411—ab
  dilated by kallikrein, 676
  disease, obliterative, of lower extremity, relieving pain in, [Smithwick] 1208—ab
  effect of bismuth subnitrate on in arterial hypertension, [Stieglitz] ★842
  effect of fresh defibrinated blood on, [Zipf] 238—ab
  femoral, thrombosis, [Olow] 832—ab
  hemangiectatic hypertrophy of limb, [Harris] 373—ab
  pathologic changes in nicotinism, [Kosdoba] 240—ab
  reactions to cold, [Lewis] 374—ab
  retinal, changes, in hypertension, [Wagener] 1451—ab
  roentgen study, sodium iodide injections into, [Charbonnel] 235—ab
BLOODGOOD, JOSEPH COLT, demonstration on diseases and tumors of bone, 349
BLOODLETTING, observations on Kachenjunga expedition, 1030
  treatment of snake bite, [Hellaway] 1537—ab
BLUE, RUPERT, A. M. A. medal presented to, 118
BLUE REACTION, Brugsch's, in icterus, [Van den Bergh] 1951—ab
BLUM SCHOLARSHIPS: See Scholarships
BOARDS, Licensing: See State Boards
BOATS: See Ships
BODY: See also Constitution
  aluminum in, not cumulative, 1691
  animal, zinc content, [Bertrand] 1299—ab
  cavities, blood extravasated into, [Heusser] 1139—ab
  cavities, irradiation, by ultraviolet rays produced therein, [Westmann] 1303—ab
  cavities, siphon system for continuous drainage of, [Pottenger] ★1670
  correlation between testis and other parts of, [Retterer] 1135—ab
  Dead: See Cadavers
  fluid volume in epilepsy, 1025—E
  fluids and burns, [Underhill] ★852; 1430—E
  height and weight measurements in school children, [Holst] 976—ab
  iron in, one-tenth ounce in entire body, 1979—E
  lack of magnesium in, 1110
  mercury in, behavior, 56
  professor bequeathes his to hospital, 1110
  spinal column and other supporting structures of, [Schanz] 829—ab
  weight, comparative gain in from cod liver oil and viosterol, [Hess & others] ★319
  weight, critical consideration of obesity, 36—E
  weight, eat and grow fat, 1182—E; 1507—E
  weight, eat and stay thin, 1182—E
  weight, effect of continued administration of iodide, 1916—E
  weight, effects of fluid intake on, 217
  weight, increased, and hypothyroidism, 362
  weight, "The Thin Child and Calcium," 1038
  weight, underweight and tuberculous infection, [Opie] ★1155
BODY—Continued
  weight, unusually light-weight (21 ounces) new-born child, 425
BOEDING, E. (Mrs.), Stroopal fraud, 1037—BI
BÖHLER, LORENZ, 348
BOILS: See Acne; Carbuncle; Furunculosis
BOLTZ TEST: See Cerebrospinal Fluid
BONE: See also Fractures; Osteitis; Osteomyelitis; etc.; under names of specific bones
  atrophy, in bone and joint tuberculosis, [van Haeff] 84—ab
  atrophy, in poliomyelitis, [Tumpeer & McNealy] ★19
  cancer, metastatic from breast, [Carnett] 369—ab
  cancer (skeletal), metastatic from thyroid, [Levin] 1771—ab
  cavities, autoplastic blood graft in, [Leo] 761—ab
  changes with parathyroid tumor, [Snapper] 1375—ab
  cysts, [Platt] 968—ab
  disease, peculiar, in nursling, [Roske] 1462—ab
  diseases and tumors, demonstration by Dr. Bloodgood, 349
  diseases vs. calcium metabolism, endocrines and vitamins, 1601; 1603
  dystrophy, fibrous, in hyperparathyroid dog, [Jaffe] 1941—ab
  formation, appearance of ossification centers after using viosterol, [Hess & others] ★322
  formation, experimental, [Mazzini] 1137—ab
  formation in cystostomy scar, [Rolland] 235—ab
  formation, metallic osteosynthesis, [Frantz] 1134—ab
  formation, osteogenesis imperfecta infantilis, [Inglis] ★1262
  Fractures: See Fractures
  fragility, idiopathic osteopsathyrosis, [Harpoth] 312—ab
  fragility in poliomyelitis, [Tumpeer & McNealy] ★19
  from head of radius is chipped off causing baseball pitchers' elbow, [Kirby] ★404
  graft, beef-bone intramedullary, to reduce clavicle, [Brockway] 825—ab
  grafting of bone in lower jaw, [Axhausen] 1952—ab
  grafting of fibula to humerus, [Behrend] 1941—ab
  grafts, autoplastic and homoplastic periosteal, [Polacco] 697—ab
  grafts, osteoperiosteal, [Dorrance] 961—ab
  growth and development of rickets, [Mitchell & Nelson] ★1896
  healing after parathyroidectomy, [Speed] 1863—ab
  healing, deficient, in poliomyelitis, [Tumpeer & McNealy] ★19
  inflammatory focus in, determining site of, rôle of bandage, [Kusmin] 900—ab
  lesions from undulant fever, [Weil] 701—ab
  lesions in tardive heredosyphilis, [Pendergrass] 1290—ab
  mercury in, 56
  necrosis, repair in, [Phemister] 1778—ab
  necrosis, subchondral, [Cordes] 699—ab
  osteoporosis, [Leriche] 375—ab; [Gerth] 635—ab
  painful, and muscle syndrome in juvenile ovarian insufficiency, [Maranon] 375—ab
  perforation of duodenum and liver by fishbone, [Douglas] ★265
  regeneration vs. diet, [Mondry] 1543—ab
  repair, early phases, [Ham] 1778—ab; [Phemister] 1778—ab
  resorption (complete) after fracture, [Rothermel] 831—ab
  roentgen observations in erythroblastic anemia, [Manderville] 737—ab
  roentgen photography at base of skull, [Christiansen] 904—ab
  roentgen rays irradiation of long bones in agranulocytosis, [Roberts & Kracke] ★780
  sarcomas of long bones, [Behring] 702—ab
  short, streptococcal infections, [Phemister & others] ★995
  skeletal traction for femur fractures, [Clayton] 967—ab
  Softening: See Osteomalacia
  tuberculosis and sunlight, 250—ab
  tuberculosis, bone atrophy, [van Haeff] 84—ab
  tuberculosis of calcaneus in children, [Pouzet] 1214—ab
  tuberculosis simulating streptococcal infections, [Phemister & others] ★995
  tuberculosis, treatment by vitamins A and D, [Pattison] 1052—ab
  tumors, giant cells, 1205—ab
BONE MARROW, feeding in secondary anemia, [Giffin & Watkins] ★589, ★591
  functioning in phthisis, [Gosio] 1136—ab
  in scurvy, [Mettier & others] ★1092
  normal filament and nonfilament polymorphonuclear neutrophils, [Farley] 1289—ab
  preparation for anemia in children, [Borchardt] 1302—ab

BONE MARROW—Continued
  primary pathogenic condition in, in agranulocytosis, [Roberts & Kracke] ★780
BOOKS: See also Journals; Literature; Newspapers; Poets; Writers; Book Notices at end of letter B
  fifty dollars for your biography in print, 209
  health record book, 1848
BORDEN'S Evaporated Milk, mineral values, [Weston] ★835
BOSTON University Commission on Sterility, [Meaker] ★468
BOUGIE, ureteral stone dislodger, [McKay] ★794
BOURGET, PAUL, 1516
BOWEL: See Intestines
BOXING match, control of hemorrhage during, 955
  compared with rapier dueling, 216; 598—E
BRADLEY, WILLIAM HENRY, awarded Sir Charles Hastings Prize, 805
BRADY, WILLIAM, newspaper columnist, 346—E
BRADYCARDIA, icteric, development vs. bile salts, [Thomas] 161—ab
  in aconitine poisoning, [Hartung] ★1265
BRAGG, PAUL C., 348
BRAIN: See also Cerebellum; Medulla Oblongata; etc.
  abscess, action of camphor in [Kirch] 378—ab
  abscess, diagnosis, [O'Shea] 1052—ab
  abscess, mortality; reduction by simple therapeutic methods, [Coleman] 161—ab
  abscess, ophthalmologic observations in, [Coleman] ★568
  abscess, tapping for, [Steegmann & Karnosh] ★410
  abscesses, multiple, complicating bronchiectasis [Romano] 975—ab
  abscesses, treatment and prognosis, [Jofré de Villegas] 1384—ab
  accidents after ligature resection of internal jugular, [Creysell] 1135—ab
  amyloidosis from roentgen ray, [Fischer] 1952—ab
  blood bilirubin in cerebrovascular accidents, [Cheney] 444—ab
  blood vessels, isolating from urine a substance which exerts dilating action on, 676
  capillaries, hyaline degeneration, [Klissurow] 699—ab
  changes in endocarditis, [Zolotowa] 635—ab
  changes in exsiccosis, [Goldzieher] 700—ab
  cortical areas more developed in gifted musicians, 879
  cysts, sudden death with, [Knox] ★1813
  dehydration, salt solution for, 1039
  edema in jake paralysis, [Jeter] ★112
  exploration with aid of iodized oil, 213
  flap: relation to intracranial pressure, [Heathcote] 627—ab
  functions, 1268—E
  hemorrhage, acetonuria of cerebral origin, [Brix] 903—ab
  hemorrhage as cause of infant mortality, 1367
  hemorrhage mortality increasing, 807
  in endocarditis, [Winkelman] 296—ab
  injury in newborn, [Munro] 1295—ab
  intracerebral method of inoculating guinea-pigs, [Magath] 1862—ab
  lesions in whooping cough, [Mikulowski] 1380—ab
  narcotine effect on, [Chopra] 1053—ab
  Pressure in: See Intracranial Pressure
  roentgen study as roentgenologist should understand it, [Pancoast] 826—ab
  roentgen study in fixed lesions, [Crothers] 1126—ab
  roentgen study in juvenile cerebral paralysis, [Guttmann] 902—ab
  roentgen study of brain tumor, [Dyke] 446—ab; [Pinto] 1871—ab
  subcortical centers rôle of, 1519
  surgery, electrocoagulation in, [Olivecrona] 832—ab
  surgery, postoperative accidents in, 1682
  tetanus, vaccination against, [Mutermilch] 1133—ab
  traumatic pneumocephalus, [Rand] 230—ab
  tuberculoma, healed, [Paterson] 560—ab
  tumor, indirect signs in roentgen examinations, [Dyke] 446—ab
  tumors among insane, [Davidoff] 1619—ab
  tumors as cause of epilepsy, [Moniz] 1300—ab
  tumors, diagnostic value of increased pressure of spinal fluid, [Mayer] 379—ab
  tumors, encephalographic diagnosis, [Pinto] 1871—ab
  tumors involving occipital lobe, [Allen] 1209—ab
  tumors, meningiomas: multiple intracranial type, [Hosoi] 157—ab
  tumors, multiple angiomas, [Hosoi] 157—ab
  tumors, postoperative accidents, 1682
  tumors, teratoma, [Hosoi] 370—ab
  tumors, therapeutic abortion in, [Fleischmann] 1305—ab
BRAISTED, WILLIAM CLARENCE, A. M. A. medal presented to, 118
BRANDY, 15 per cent alcohol allowed, Belgium, 1602
  in therapeutics, 672
BRASSIÈRE for prolapsed atrophic breasts, [Farrar] ★1331
BREAD and milk, digestion of, [Childrey] 1374—ab
BREAD—Continued
  Basy Bread, 1194—BI
  effect on constipation, [Mottram] 234—ab
  graham, digestion of, [Childrey] 1374—ab
  making, Italian government study of, 947
  rye, endemic ergotism, [Kaunitz] 157—ab
BREAKFAST Food: See Cereals
  special, effect on basal metabolism, [Wang] 1128—ab
BREAKS-IT, 431—BI
BREAST: See also Lactation; Nipple
  atrophic, prolapsed, brassière for, [Farrar] ★1331
  atrophy of mammary gland, autotransplantation of fat, [Passot] 375—ab
  benign disorders of mammary gland relation to cancer of, 1442
  cancer, bone metastases in, [Carnett] 369—ab
  cancer, etiology, [Taylor] 1863—ab
  cancer, local metastases in, [Schloffer] 1952—ab
  cancer, problem, [Bevan] ★1311
  cancer, radiotherapy plus radical operation [Trout & Peterson] ★1307
  cancer, radium for [Handley] 1622—ab; [Keynes] 1622—ab; [Cade] 1622—ab; [Fitzwilliams] 1623—ab
  cancer, rodent ulcer after roentgen irradiation [Edwards] 968—ab
  cancer, surgery and radium for, [Warwick] 454—ab
  cancer, surgical and radiologic treatment, [Westermark] 462—ab
  cancer treatment, [Himmelmann] 1543—ab; [Fitzwilliams] 1623—ab
  cystic mastitis, [Harrold] 76—ab; [Bevan] ★1312
  cysts, papillomatous, [Bevan] ★1312
  engorgement previous to menstruation, 287
  fat necrosis, [Brancati] 1540—ab
  inflammation, cystic, [Harrold] 76—ab; [Bevan] ★1312
  male, diseases, [Neal & Simpson] 153—ab
  mammary gland adenoma during pregnancy, [Kreibig] 1304—ab
  mammary gland atrophy, [Passot] 375—ab
  mammary gland syphilis, [Akaiwa] 1543—ab
  pain, left inframammary, [Baker] 374—ab
  prolapse, nonmalignant nodules of breast the result of [Farrar] ★1329
  prolapsed atrophic, brassiere for, [Farrar] ★1331
  sarcoma, [Bevan] ★1312
  surgery, does bleeding nipple justify removal, [Mintz] 637—ab
  tumors, [illegible]
  tumors, [illegible]
  tumors, [illegible]
  tumors, fibro-adenomas, [Bevan] ★1312
  tumors, nonmalignant, removal, [Greenwood] 628—ab
  tumors, problem, [Bevan] ★1311
BREAST PANG: See Angina Pectoris
BREATHING: See Respiration
BRIDRÉ-JOUAN-phenomenon, 802—E
BRIGHT'S DISEASE: See Nephritis
BRILL'S DISEASE, typhus-like diseases, 869—E
BRILLIANT GREEN, action on Monilia tropicalis, [Lim] 629—ab
  as bactericide, 215
BRINKLEY, JOHN R., 54; 941
BRITISH ASSOCIATION, 945
BRITISH BOOT, SHOE AND ALLIED TRADES RESEARCH ASSOCIATION, 945
BRITISH COLUMBIA ASSOCIATION, postgraduate tour, 805
BRITISH EMPIRE CANCER CAMPAIGN: discovery of an anticarcinogenic agent, 423
BRITISH EMPIRE LEPROSY RELIEF ASSOCIATION, fight against leprosy, by 1599
BRITISH GOVERNMENT, employment of physicians, 1757
BRITISH MEDICAL ASSOCIATION, birth control discussed by 543
  election, 805
  general practitioner's section in Victoria sponsors a new medical journal: *G. P.*
  hospital policy discussed by, 513
  in Canada, 733—E
  meeting, 209; 542; 543; 733—E
  on proposed medical socialist organization, 543; 1030; 1274
  patenting of medical discoveries, 543
  prize on diagnosis of early pulmonary tuberculosis, 1029
  search for health, 1429—E
BRITISH MEDICAL REGISTER and India, 137; 423; 1924
BRITISH PHARMACOPEIA · See Pharmocopeia
BRITISH POSTGRADUATE HOSPITAL AND MEDICAL SCHOOL, 605
BRITISH RED CROSS; See Red Cross
BROAD LIGAMENT abscess, postpuerperal, [Brady] ★338
BROADCASTING: See Radio
*tri*BROMETHANOL, Avertin, 1427; 1130—E. ★1451
  as preoperative narcotic, [Wood] 1615—ab
BROMIDE, Casco Cascara Bromide Quinine Laxative Tablets, 883—BI
  poisoning, [Harris & Hauser] ★91, [Wiedman] 1281—C; [Goldenberg] 1689—C
BROMIDE—Continued
  poisoning in psychotics, [Wagner & Bunbury] ★1725
  poisoning or psychosis, [Andrews] 826—ab
  potassium, and conditioned reflexes, 415—E
  test for pregnancy diagnosis, [Dodds] 80—ab
  treatment of tic of salpingopalatinus muscle, [Stoll] ★796
BROMINIZED OIL in diagnosis of nasal sinus conditions, [Goodyear] ★1002
  pharmacology, [Smith] 1617—ab
BROMOLINE, 952—BI
BROMO SELTZER [illegible] emoglobinemia from, ★647
[illegible] radient of capillary
[illegible] lications, brain abscesses, [Romano] 975—ab
  in miners, 1033
  treatment, [Alexander & Buckingham] ★1478
  treatment, iodized oil, [Stiehm] 1867—ab
BRONCHITIS, acute and chronic, in infancy and childhood, [Summers] 151—ab
  asthmatic, ephedrine in, [Agrelo] 1626—ab
  before and after tonsillectomy, [Kaiser] ★838
  epidemic due to type V pneumococci [Schroder] 231—ab
  from dust inhalation and iron ore mining, [Collis] 1377—ab; [Russell] ★1714
  in children, calcium for, [Ochsenius] 379—ab
  in miners; tuberculosis and anthracosis, 1033
  nostrum, Forkola Jell, 883—BI
  nostrum, Numoss, 952—BI
  nostrum, Palatol, 951—BI
  relapsing, sequel of warfare gas poisoning, [Reiche] 379—ab
BRONCHOMYCOSIS, [Stokes & others] ★14
BRONCHOPNEUMONIA in infants, benefit from mustard plasters, 67
  in children, vaccinotherapy, [Gardère] 1381—ab
  treatment, conservative, [Spector] ★789
BRONCHOSCOPY, Dr. Tucker becomes professor of, at Pennsylvania, 1434
  in postoperative atelectasis, [Brown] ★100
  use in neoplastic and other diseases of lung, [Jackson] ★639
BRONCHOSINUSITIS, [Deweese] 156—ab
BRONCHUS: See also Lymphatic System
  cancer, primary, [Funk] ★1879
  Diseases: See Bronchitis; Spirochetosis; etc.
  obstruction factor in lungs diseases, [Jackson] ★639
BRONZE poisoning, symptoms in persons working with cigaret wrappers, 288
BROTH, nutrient, for bacteria culture, 802—E
BROWN, WILLIAM P., 1354
BRUCELLA Abortus: See Bacterium
  Abortus Infection: See Abortion, Infectious; Undulant Fever
BRUCELLIASIS: See Undulant Fever
BRUDZINSKI'S SIGN, [Hall] ★701
BRUGSCH'S blue reaction in icterus, [van den Bergh] 1931—ab
BRUISES: See Contusions
BRUNNER'S GLANDS vs. genesis of gastroduodenal ulcers, [Pescatori] 831—ab
BRUSSELS Medical Convention, 1759
BUBOES, parenteral application of phenol, [Matusis] 296—ab
BUCKET for gastric feeding in cardiospasm, [Einhorn] 228—ab
BUDAPEST Royal Hygienic Institute, 1361
BUERGER'S DISEASE: See Thrombo-Angiitis obliterans
BU-KU-JIN ELIXIR, 680—BI
BUNCE, ALLEN H., A. M. A. representative at memorial services for Dr. Ever, 206
BUNSEN gas flame, radiations from, [Coblentz] ★112
BUREAUS: See also Better Business Bureau; Placement
  of Narcotics, 671
  of the A. M. A.: See American Medical Association
BURNS, body fluids and, 1430—E
  contractures in, whirlpool baths and posterior splinting to overcome, [Hilbert] ★1021
  diagnosis of convulsive seizures, 362
  from tetra-ethyl lead or ethylene dibromide in a laboratory worker, 1146
  in children, [Davidson] 1941—ab
  of extremities, late treatment, [Brown] 151—ab
  superficial, extensive, anhydremia in, [Underhill] ★852
  treatment, procaine hydrochloride-epinephrine solution, [Novak] 1788—ab
  treatment, silver foil, [Pfab] 459—ab
  treatment, tannic acid, [Wollesen] 761—ab; [Davidson] 1941—ab
  with diathermy, device for protection against, [Kowarschik] 170—ab
BURR, B., honored, 1353
BURSA, enlargement at ankle, 1197
BURT-WHITE, HAROLD, awarded Katherine Bishop Harman Prize, 805
BUSINESS: See Better Business Bureau; Economics
BUTTER, vitamin A in, 347—E; 1978—E
BUTTERMILK for infants, [Marfan] 828—ab
BUTYN to prevent cocaine intoxication, 1839—E
BYRD, JESSE L., 603

BLOOD—Continued
Types: See Blood groups
ultraviolet irradiation effect on [Maleczynski] 459—ab; [Hoeffel] 1373—ab
urea, azotemia, as postoperative reaction, [Berceanu] 1381—ab
urea, azotemia without renal lesions, [Roch] 1214—ab
urea, azotemic nephritis in typhoid, [Lemierre] 1997—ab
urea estimation outfit, Hench-Aldrich, 1366
urea nitrogen in cutaneous and venous blood, [Neale] 1864—ab
uricacidemia in diabetes, [De Candia] 1300—ab
velocity changes vs. posture, [Bock] 449—ab
viosterol effect on, [Hess and others] ★319, ★321; [Kaminsky] 622—ab
viscosity in hypertension, [Harris] 970—ab
viscosity in tuberculin shock, [Gatto] 632—ab
Volume: See also Blood supply
volume, fetus at term, including umbilical cord and placenta, 1039
volume in dysmenorrhea, [Miller] ★1796
volume, loss of, shock from, [Atchley] ★385
volume, reduction in thrombo-angiitis obliterans, [Silbert] 229—ab
volume vs. posture, [Bock] 449—ab
Vomiting of: See Hematemesis
Wassermann test on, from umbilical cord of new-born infants, 683
water content, anhydremia, effects of loss of gastric juice, 936—E
water content, anhydremia in extensive superficial burns, [Underhill] ★852; 1430—E
Withdrawal: See Bloodletting
BLOOD PRESSURE after spinal cord section, [Leriche] 1623—ab
allergy and, [Waldbott] 291—ab
Arterial: See also Blood Pressure, high
arterial, in pulmonary tuberculosis, [Diez Fernández] 1137—ab; [Leuret] 1214—ab
at high altitude (28,150), 1030
behavior, in mental exertion, [Fischer] 239—ab
changes, menopausal, [von Magyary] 1786—ab
comparative, in two arms, [Kay] 893—ab
determination, grypotonography, [von Recklinghausen] 170—ab
determination of venous, 1183—E
determination, sound phases in, 222; 886
diastolic, after exertion, [Schellong] 1217—ab
diastolic, reading, 1933
during epileptic seizure, [Hendriksen] 1706—ab
epinephrine potency and, 1979—E
fresh defibrinated blood action on, [Zipf] 238—ab
high, albumin in blood, [Dumas] 1623—ab
high, arterial, bismuth subnitrate in, [Stieglitz] ★842
high, arterial, evaluation of prognosis, [Stieglitz] 1127—ab
high, blood viscosity in, [Harris] 970—ab
high, causes, [Secher] 638—ab; [Bell] 1451—ab
high, daily and monthly rhythm in, [Brown] 447—ab
high, diastolic, determinations, significance, 1118
high, diastolic essential, significance, [McCloud] 372—ab
high, effect of internal secretion of pancreas (kallikrein), 676
high, emotional, [Stieglitz] 368—ab
high, epinephrine test in, [Jensen] 1125—ab
high, essential, [McCloud] 372—ab; [Keith] 1454—ab
high, essential, histologic changes in renal glomerulus, in, [McGregor] 157—ab
high, essential primary and permanent arterial, [Monier-Vinard] 1133—ab
high, essential, therapeutic results evaluated, in symptomatic relief, [Ayman] ★246
high, etiology, [Waller] 1701—ab
high, institutional physical therapy in treatment, [Watkins] 559—ab
high, paroxysmal, in suprarenal medullary adenoma, [Labbé] 303—ab
high, patients desired for study by University of Chicago, 1677
high, permanent arterial, contradictory results from suprarenalectomy, 1031
high, potassium thiocyanate effect on, [Saleeby] 965—ab
high, pregnancy, albuminuria, edema, etc., [Huggins & Bucy] ★653
high, relation to surgical risk, [Butler & others] ★89
high, retinal vascular changes in, [Wagener] 1454—ab
high, so-called malignant, [Murphy] 691—ab
high, structural changes in kidneys in, [Narr] 156—ab
high, symptomatology, [Riseman] 444—ab
high, syphilis relation to, [Horine & Weiss] 555—ab; [Horine] 1697—ab
high, treatment, 433; [Weiss & Ellis] ★846
high, variations in, 679—E
in brachial artery compressed by sphygmomanometer, [Forti] 1136—ab
in normal child, [Chabrun] 1782—ab
low, blood albumin in, [Dumas] 1623—ab
low, in superficial burns, [Underhill] ★852
low, shock cause of, produced by muscle injury, 204—E

BLOOD PRESSURE—Continued
meat diet a menace? 866—E; [Falcon-Lesses] 1445—C; [Moulton] 1762—C
suprarenal cortical insufficiency, [Saphir & Binswanger] ★1007
variations, 666—E
variations after roentgen irradiations, [Pausdorf] 1953—ab
vegetarian diet effect on, [Salle] 902—ab
venous, in artificial pneumothorax, [Bosviel] 1212—ab
venous, measurement, 1183—E
venous, vena cava reaction in, [Allen] 1627—ab
vital capacity and, [Allen] 227—ab
BLOOD TRANSFUSION, apparatus (thrombagoge), [Neubauer] 83—ab
Donor Bureau, 1842
experiences, [Majanz] 700—ab
experiments on onset of labor, 516
for inflammation of digestive organs, 1601
from group II (A) donor to group III (B) recipient, [Burnham] 1375—ab
gas poisoning and, [Sennels] 312—ab
in acute infectious diseases, [Landon] 1531—ab
in agranulocytosis, [Fisher] 232—ab; [Roberts & Kracke] ★780
in anemia in children, [Rau] 1302—ab
in Bright's disease, [Mosenthal] 71—ab, 1531—ab
in cure of aplastic anemia, [Birk] 83—ab
in malarial hemoglobinuria, [Barnett] 967—ab
in medical shock, [Atchley] ★385
in pernicious anemia, [Don] 1210—ab
in shock from intravenous rattlesnake bite, [Atchley] ★385
making it safe, [Schöne] 1952—ab
recipient of many transfusions, [Polayes & Lederer] ★107
venoclysis, [Hendon] ★1175
BLOOD VESSELS: See also Arteries; Capillaries; Vasomotor Mechanism; Veins; etc.
aberrant renal, and uropyonephrosis pathogenesis, [Lozzi] 1703—ab
as possible source of visceral pain, [Livingston] 413—ab
cerebrovascular accidents, value of blood bilirubin estimations in, [Cheney] 411—ab
dilated by kallikrein, 676
disease, obliterative, of lower extremity, relieving pain in, [Smithwick] 1208—ab
effect of bismuth subnitrate on in arterial hypertension, [Stieglitz] ★812
effect of fresh defibrinated blood on, [Zipf] 238—ab
femoral, thrombosis, [Olow] 832—ab
hemangiectatic hypertrophy of limb, [Harris] 373—ab
pathologic changes in nicotinism, [Kosdoba] 240—ab
reactions to cold, [Lewis] 374—ab
retinal, changes, in hypertension, [Wagener] 1454—ab
roentgen study, sodium iodide injections into, [Charbonnel] 235—ab
BLOODGOOD, JOSEPH COLT, demonstration on diseases and tumors of bone, 349
BLOODLETTING, observations on Kachenjunga expedition, 1030
treatment of snake bite, [Hellaway] 1537—ab
BLUE, RUPERT, A. M. A. medal presented to, 118
BLUE REACTION, Brugsch's, in icterus, [Van den Bergh] 1951—ab
BLUM SCHOLARSHIPS: See Scholarships
BOARDS, Licensing: See State Boards
BOATS: See Ships
BODY: See also Constitution
aluminum in, not cumulative, 1691
animal, zinc content, [Bertrand] 1299—ab
cavities, blood extravasated into, [Heusser] 1139—ab
cavities, irradiation, by ultraviolet rays produced therein, [Westmann] 1303—ab
cavities, siphon system for continuous drainage of, [Pottenger] ★1670
correlation between testis and other parts of, [Retterer] 1135—ab
Dead: See Cadavers
fluid volume in epilepsy, 1025—E
fluids and burns, [Underhill] ★852; 1430—E
height and weight measurements in school children, [Holst] 976—ab
iron in, one-tenth ounce in entire body, 1979—E
lack of magnesium in, 1110
mercury in, behavior, 56
professor bequeathes his to hospital, 1110
spinal column and other supporting structures of, [Schanz] 829—ab
weight, comparative gain in from cod liver oil and viosterol, [Hess & others] ★319
weight, critical consideration of obesity, 36—E
weight, eat and grow fat, 1182—E; 1507—E
weight, eat and stay thin, 1182—E
weight, effect of continued administration of iodide, 1916—E
weight, effects of fluid intake on, 217
weight, increased, and hypothyroidism, 362
weight, "The Thin Child and Calcium," 1038
weight, underweight and tuberculous infection, [Opie] ★1155

BODY—Continued
weight, unusually light-weight (21 ounces) new-born child, 425
BOEDING, E. (Mrs.), Stroopal fraud, 1037—BI
BÖHLER, LORENZ, 348
BOILS: See Acne; Carbuncle; Furunculosis
BOLTZ TEST: See Cerebrospinal Fluid
BONE: See also Fractures; Osteitis; Osteomyelitis; etc.; under names of specific bones
atrophy, in bone and joint tuberculosis, [van Haeff] 81—ab
atrophy, in poliomyelitis, [Tumpeer & McNealy] ★19
cancer, metastatic from breast, [Carnett] 369—ab
cancer (skeletal), metastatic from thyroid, [Levin] 1771—ab
cavities, autoplastic blood graft in, [Leo] 761—ab
changes with parathyroid tumor, [Snapper] 1375—ab
cysts, [Platt] 968—ab
disease, peculiar, in nursling, [Roske] 1462—ab
diseases and tumors, demonstration by Dr. Bloodgood, 319
diseases vs. calcium metabolism, endocrines and vitamins, 1601; 1603
dystrophy, fibrous, in hyperparathyroid dog, [Jaffe] 1941—ab
formation, appearance of ossification centers after using viosterol, [Hess & others] ★322
formation, experimental, [Mazzini] 1137—ab
formation in cystostomy scar, [Rolland] 235—ab
formation, metallic osteosynthesis, [Frantz] 1131—ab
formation, osteogenesis imperfecta infantilis, [Inglis] ★1262
Fractures: See Fractures
fragility, idiopathic osteopsathyrosis, [Harpoth] 312—ab
fragility in poliomyelitis, [Tumpeer & McNealy] ★19
from head of radius is chipped off causing baseball pitchers' elbow, [Kirby] ★404
graft, beef-bone intramedullary, to reduce clavicle, [Brockway] 825—ab
grafting of bone in lower jaw, [Axhausen] 1952—ab
grafting of fibula to humerus, [Behrend] 1944—ab
grafts, autoplastic and homoplastic periosteal, [Polacco] 697—ab
grafts, osteoperiosteal, [Dorrance] 961—ab
growth and development of rickets, [Mitchell & Nelson] ★1896
healing after parathyroidectomy, [Speed] 1863—ab
healing, deficient, in poliomyelitis, [Tumpeer & McNealy] ★19
inflammatory focus in, determining site of, rôle of bandage, [Kusmin] 900—ab
lesions from undulant fever, [Weil] 701—ab
lesions in tardive heredosyphilis, [Pendergrass] 1290—ab
mercury in, 56
necrosis, repair in, [Phemister] 1778—ab
necrosis, subchondral, [Cordes] 699—ab
osteoporosis, [Leriche] 375—ab; [Gerth] 635—ab
painful, and muscle syndrome in juvenile ovarian insufficiency, [Maranon] 375—ab
perforation of duodenum and liver by fishbone, [Douglas] ★265
regeneration vs. diet, [Mondry] 1543—ab
repair, early phases, [Ham] 1778—ab; [Phemister] 1778—ab
resorption (complete) after fracture, [Rothermel] 831—ab
roentgen observations in erythroblastic anemia, [Mandeville] 757—ab
roentgen photography at base of skull, [Christiansen] 904—ab
roentgen rays irradiation of long bones in agranulocytosis, [Roberts & Kracke] ★780
sarcomas of long bones, [Behring] 702—ab
short, streptococcal infections, [Phemister & others] ★995
skeletal traction for femur fractures, [Clayton] 967—ab
Softening: See Osteomalacia
tuberculosis and sunlight, 250—ab
tuberculosis, bone atrophy, [van Haeff] 84—ab
tuberculosis of calcaneus in children, [Pouzet] 1214—ab
tuberculosis simulating streptococcal infections, [Phemister & others] ★995
tuberculosis, treatment by vitamins A and D, [Pattison] 1052—ab
tumors, giant cells, 1205—ab
BONE MARROW, feeding in secondary anemia, [Giffin & Watkins] ★589, ★591
functioning in phthisis, [Goslo] 1136—ab
in scurvy, [Mettier & others] ★1092
normal filament and nonfilament polymorphonuclear neutrophils, [Farley] 1289—ab
preparation for anemia in children, [Borchardt] 1302—ab

BONE MARROW—Continued
  primary pathogenic condition in, in agranulocytosis, [Roberts & Kracke] ★780
BOOKS: See also Journals; Literature; Newspapers; Poets; Writers; Book Notices at end of letter B
  fifty dollars for your biography in print, 209
  health record book, 1848
BORDEN'S Evaporated Milk, mineral values, [Weston] ★835
BOSTON University Commission on Sterility, [Meaker] ★468
BOUGIE, ureteral stone dislodger, [McKay] ★794
BOURGET, PAUL, 1516
BOWEL: See Intestines
BOXING match, control of hemorrhage during, 955
  compared with rapier dueling, 216; 598—E
BRADLEY, WILLIAM HENRY, awarded Sir Charles Hastings Prize, 805
BRADY, WILLIAM, newspaper columnist, 346—E
BRADYCARDIA, icteric, development vs. bile salts, [Thomas] 164—ab
  in aconitine poisoning, [Hartung] ★1265
BRAGG, PAUL C., 348
BRAIN: See also Cerebellum; Medulla Oblongata; etc.
  abscess, action of camphor in [Kirch] 378—ab
  abscess, diagnosis, [O'Shea] 1052—ab
  abscess, mortality; reduction by simple therapeutic methods, [Coleman] 161—ab
  abscess, ophthalmologic observations in, [Coleman] ★568
  abscess, tapping for, [Steegmann & Karnosh] ★410
  abscesses, multiple, complicating bronchiectasis [Romano] 975—ab
  abscesses, treatment and prognosis, [Jofré de Villegas] 1384—ab
  accidents after ligature resection of internal jugular, [Creysell] 1135—ab
  amyloidosis from roentgen ray, [Fischer] 1952—ab
  blood bilirubin in cerebrovascular accidents, [Cheney] 444—ab
  blood vessels, isolating from urine a substance which exerts dilating action on, 676
  capillaries, hyaline degeneration, [Klissurow] 699—ab
  changes in endocarditis, [Zolotowa] 635—ab
  changes in exsiccosis, [Goldzieher] 700—ab
  cortical areas more developed in gifted musicians, 879
  cysts, sudden death with, [Knox] ★1813
  dehydration, salt solution for, 1039
  edema in jake paralysis, [Jeter] ★112
  exploration with aid of iodized oil, 213
  flap: relation to intracranial pressure, [Heathcote] 627—ab
  functions, 1268—E
  hemorrhage, acetonuria of cerebral origin, [Brix] 903—ab
  hemorrhage as cause of infant mortality, 1367
  hemorrhage mortality increasing, 807
  in endocarditis, [Winkelman] 296—ab
  injury in newborn, [Munro] 1295—ab
  intracerebral method of inoculating guinea-pigs, [Magath] 1862—ab
  lesions in whooping cough, [Mikulowski] 1380—ab
  narcotine effect on, [Chopra] 1053—ab
  Pressure in: See Intracranial Pressure
  roentgen study as roentgenologist should understand it, [Pancoast] 826—ab
  roentgen study in fixed lesions, [Crothers] 1126—ab
  roentgen study in juvenile cerebral paralysis, [Guttmann] 902—ab
  roentgen study of brain tumor, [Dyke] 446—ab; [Pinto] 1871—ab
  subcortical centers rôle of, 1519
  surgery, electrocoagulation in, [Olivecrona] 832—ab
  surgery, postoperative accidents in, 1682
  tetanus, vaccination against, [Mutermilch] 1133—ab
  traumatic pneumocephalus, [Rand] 230—ab
  tuberculoma, healed, [Paterson] 560—ab
  tumor, indirect signs in roentgen examinations, [Dyke] 446—ab
  tumors among insane, [Davidoff] 1619—ab
  tumors as cause of epilepsy, [Moniz] 1300—ab
  tumors, diagnostic value of increased pressure of spinal fluid, [Mayer] 379—ab
  tumors, encephalographic diagnosis, [Pinto] 1871—ab
  tumors involving occipital lobe, [Allen] 1209—ab
  tumors, [illegible] itracranial type,
  tumors, [illegible]] 157—ab
  tumors, [illegible] 82
  tumors, [illegible]
  tumors, therapeutic abortion in, [Fleischmann] 1305—ab
BRAISTED, WILLIAM CLARENCE, A. M. A. medal presented to, 118
BRANDY, 15 per cent alcohol allowed, Belgium, 1602
  in therapeutics, 672
BRASSIÈRE for prolapsed atrophic breasts, [Farrar] ★1331
BREAD and milk, digestion of, [Childrey] 1374—ab
BREAD—Continued
  Basy Bread, 1194—BI
  effect on constipation, [Mottram] 234—ab
  graham, digestion of, [Childrey] 1374—ab
  making, Italian government study of, 947
  rye, endemic ergotism, [Kaunitz] 157—ab
BREAKFAST Food: See Cereals
  special, effect on basal metabolism, [Wang] 1128—ab
BREAKS-IT, 431—BI
BREAST: See also Lactation; Nipple
  atrophic, prolapsed, brassière for, [Farrar] ★1331
  atrophy of mammary gland, autotransplantation of fat, [Passot] 375—ab
  benign disorders of mammary gland relation to cancer of, 1442
  cancer, bone metastases in, [Carnett] 369—ab
  cancer, etiology, [Taylor] 1863—ab
  cancer, local metastases in, [Schloffer] 1952—ab
  cancer, problem, [Bevan] ★1311
  cancer, radiotherapy plus radical operation [Trout & Peterson] ★1307
  cancer, radium for [Handley] 1622—ab; [Keynes] 1622—ab; [Cade] 1622—ab; [Fitzwilliams] 1623—ab
  cancer, rodent ulcer after roentgen irradiation [Edwards] 968—ab
  cancer, surgery and radium for, [Warwick] 454—ab
  cancer, surgical and radiologic treatment, [Westermark] 462—ab
  cancer treatment, [Himmelmann] 1543—ab; [Fitzwilliams] 1623—ab
  cystic mastitis, [Harrold] 76—ab; [Bevan] ★1312
  cysts, papillomatous, [Bevan] ★1312
  engorgement previous to menstruation, 287
  fat necrosis, [Brancati] 1540—ab
  inflammation, cystic, [Harrold] 76—ab; [Bevan] ★1312
  male, diseases, [Neal & Simpson] 153—ab
  mammary gland adenoma during pregnancy, [Kreibig] 1304—ab
  mammary gland atrophy, [Passot] 375—ab
  mammary gland syphilis, [Akaiwa] 1543—ab
  pain, left inframammary, [Baker] 374—ab
  prolapse, nonmalignant nodules of breast the result of [Farrar] ★1329
  prolapsed atrophic, brassiere for, [Farrar] ★1331
  sarcoma, [Bevan] ★1312
  surgery, does bleeding nipple justify removal, [Mintz] 637—ab
  tumors, adenoma, [Kreibig] 1304—ab
  tumors, classification, [Bevan] ★1312
  tumors, etiology, [Taylor] 1863—ab
  tumors, fibro-adenomas, [Bevan] ★1312
  tumors, nonmalignant, removal, [Greenwood] 628—ab
  tumors, problem, [Bevan] ★1311
BREAST PANG: See Angina Pectoris
BREATHING: See Respiration
BRIDRÉ-JOUAN-phenomenon, 802—E
BRIGHT'S DISEASE: See Nephritis
BRILL'S DISEASE, typhus-like diseases, 869—E
BRILLIANT GREEN, action on Monilia tropicalis, [Lim] 629—ab
  as bactericide, 215
BRINKLEY, JOHN R., 54; 941
BRITISH ASSOCIATION, 945
BRITISH BOOT, SHOE AND ALLIED TRADES RESEARCH ASSOCIATION, 945
BRITISH COLUMBIA ASSOCIATION, postgraduate tour, 805
BRITISH EMPIRE CANCER CAMPAIGN: discovery of an anticarcinogenic agent, 423
BRITISH EMPIRE LEPROSY RELIEF ASSOCIATION, fight against leprosy, by 1599
BRITISH GOVERNMENT, employment of physicians, 1757
BRITISH MEDICAL ASSOCIATION, birth control discussed by 543
  election, 805
  general practitioner's section in Victoria sponsors a new medical journal: *G. P.*
  hospital policy discussed by, 543
  in Canada, 733—E
  meeting, 209; 542; 543; 733—E
  on proposed medical socialist organization, 543; 1030; 1274
  patenting of medical discoveries, 543
  prize on diagnosis of early pulmonary tuberculosis, 1029
  search for health, 1429—E
BRITISH MEDICAL REGISTER and India, 137; 423; 1924
BRITISH PHARMACOPEIA: See Pharmocopeia
BRITISH POSTGRADUATE HOSPITAL AND MEDICAL SCHOOL, 605
BRITISH RED CROSS: See Red Cross
BROAD LIGAMENT abscess, postpuerperal, [Brady] ★338
BROADCASTING: See Radio
*tri*BROMETHANOL, Avertin, 1127; 1130—E, ★1451
  as preoperative narcotic, [Wood] 1615—ab
BROMIDE, Casco Cascara Bromide Quinine Laxative Tablets, 883—BI
  poisoning, [Harris & Hauser] ★91; [Wiedman] 1281—C; [Goldenberg] 1689—C
BROMIDE—Continued
  poisoning in psychotics, [Wagner & Bunbury] ★1725
  poisoning or psychosis, [Andrews] 826—ab
  potassium, and conditioned reflexes, 415—E
  test for pregnancy diagnosis, [Dodds] 80—ab
  treatment of tic of salpingopalatinus muscle, [Stoll] ★796
BROMINIZED OIL in diagnosis of nasal sinus conditions, [Goodyear] ★1002
  pharmacology, [Smith] 1617—ab
BROMOLINE, 952—BI
BROMO-SELTZER, sulphemoglobinemia from, [Harrop & Waterfield] ★647
BROMPHENOL BLUE, gradient of capillary permeability, 938—E
BRONCHIECTASIS, complications, brain abscesses, [Romano] 975—ab
  in miners, 1033
  treatment, [Alexander & Buckingham] ★1478
  treatment, iodized oil, [Stiehm] 1867—ab
BRONCHITIS, acute and chronic, in infancy and childhood, [Summers] 151—ab
  asthmatic, ephedrine in, [Agrelo] 1626—ab
  before and after tonsillectomy, [Kaiser] ★838
  epidemic due to type V pneumococci [Schroder] 231—ab
  from dust inhalation and iron ore mining, [Collis] 1377—ab; [Russell] ★1714
  in children, calcium for, [Ochsenius] 379—ab
  in miners; tuberculosis and anthracosis, 1033
  nostrum, Forkola Jell, 883—BI
  nostrum, Numoss, 952—BI
  nostrum, Palatol, 951—BI
  relapsing, sequel of warfare gas poisoning, [Reiche] 379—ab
BRONCHOMYCOSIS, [Stokes & others] ★14
BRONCHOPNEUMONIA in infants, benefit from mustard plasters, 67
  in children, vaccinotherapy, [Gardère] 1381—ab
  treatment, conservative, [Spector] ★789
BRONCHOSCOPY, Dr. Tucker becomes professor of, at Pennsylvania, 1434
  in postoperative atelectasis, [Brown] ★100
  use in neoplastic and other diseases of lung, [Jackson] ★639
BRONCHOSINUSITIS, [Deweese] 156—ab
BRONCHUS: See also Lymphatic System
  cancer, primary, [Funk] ★1879
  Diseases: See Bronchitis; Spirochetosis; etc.
  obstruction factor in lungs diseases, [Jackson] ★639
BRONZE poisoning, symptoms in persons working with cigaret wrappers, 288
BROTH, nutrient, for bacteria culture, 802—E
BROWN, WILLIAM P., 1354
BRUCELLA Abortus: See Bacterium
  Abortus Infection: See Abortion, Infectious; Undulant Fever
BRUCELLIASIS: See Undulant Fever
BRUDZINSKI'S SIGN, [Hall] ★704
BRUGSCH'S blue reaction in icterus, [van den Bergh] 1951—ab
BRUISES: See Contusions
BRUNNER'S GLANDS vs. genesis of gastroduodenal ulcers, [Pescatori] 831—ab
BRUSSELS Medical Convention, 1759
BUBOES, parenteral application of phenol, [Matusis] 296—ab
BUCKET for gastric feeding in cardiospasm, [Einhorn] 228—ab
BUDAPEST Royal Hygienic Institute, 1361
BUERGER'S DISEASE: See Thrombo-Angiitis obliterans
BU-KU-JIN ELIXIR, 680—BI
BUNCE, ALLEN H., A. M. A. representative at memorial services for Dr. Ever, 206
BUNSEN gas flame, radiations from, [Coblentz] ★412
BUREAUS: See also Better Business Bureau; Placement
  of Narcotics, 671
  of the A. M. A.: See American Medical Association
BURNS, body fluids and, 1430—E
  contractures in, whirlpool baths and posterior splinting to overcome, [Hilbert] ★1021
  diagnosis of convulsive seizures, 362
  from tetra-ethyl lead or ethylene dibromide in a laboratory worker, 1116
  in children, [Davidson] 1941—ab
  of extremities, late treatment, [Brown] 154—ab
  superficial, extensive, anhydremia in, [Underhill] ★852
  treatment, procaine hydrochloride-epinephrine solution, [Novak] 1788—ab
  treatment, silver foil, [Pfab] 459—ab
  treatment, tannic acid, [Wollesen] 764—ab; [Davidson] 1941—ab
  with diathermy, device for protection against, [Kowarschik] 170—ab
BURR, B., honored, 1353
BURSA, enlargement at ankle, 1197
BURT-WHITE, HAROLD, awarded Katherine Bishop Harman Prize, 805
BUSINESS: See Better Business Bureau; Economics
BUTTER, vitamin A in, 347—E; 1978—E
BUTTERMILK for infants, [Marfan] 898—ab
BUTYN to prevent cocaine intoxication, 1839—E
BYRD, JESSE L., 603

BOOK NOTICES

Abderhalden Reaction, Handbuch der pathogenen Mikroorganismen, 687
de Abreu, M., Études radiologiques sur le poumon et le médiastin, 1122
de Abreu, M., Radiographie néphro-cholécystique, 750
Accidents, La práctica médica en los accidentes del trabajo, 68
Accounts, Medical Service: Its Relation to Collections: How to Collect, 617
Actinology, First International Congress of, Transactions, 364
Adami, J. George Adami, A Memoir, 1991
Adami, M., J. George Adami, A Memoir, 1991
Adams, D., Reports of Committee of Medical Research Council upon Physiology of Vision, 750
Adler, A., Praxis und Theorie der Individualpsychologie, 1369
Adolescent: His Conflicts and Escapes, 224
Aged Persons, Care of, in the United States, 1369
Agglutinins, Handbuch der pathogenen Mikroorganismen, 687
Aitken R., Ultra-violet Radiations and Their Uses, 1370
Albuminuria, Malarial Nephritis, 149
Alexander, F., Psychoanalysis of Total Personality, 1935
Alimentary Tract, Behavior Patterns of, 1042
Alkan, L., Anatomische Organkrankheiten aus seelischer Ursache, 617
Allbutt, Sir Thomas Clifford, 1450
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A M. A. Council on Pharmacy and Chemistry, New and Nonofficial Remedies, 68
A. M. A. Council on Pharmacy and Chemistry, Useful Drugs, 1368
Anatomy, 1936
Anatomy, *Doctor, Tell Me!* 1771
Anatomy, Introduction to the Study of Human Anatomy, 1526
Anatomy, Methods and Problems of Medical *Education,* 553
Anatomy of the Human Body, 1526
Anatomy, Photographisches Praktikum für Mediziner und Naturwissenschaftler, 148
Anatomy, Practical Massage and Corrective Exercises with Applied Anatomy, 364
Anatomy, Yourself, Inc.: The Story of the Human Body, 1451
Andrewes, F. W., System of Bacteriology in Relation to Medicine, 1694
Andrus, E. C., Manual of Physical and Clinical Diagnosis, 888
Anemia, Pernicious, 1121
Anesthesia, La rachianesthésie, 69
Anesthesia, Practical Local Anesthesia and Its Surgical Technic, 68
Anesthésie locale en oto-rhino-laryngologie, 365
Animals, Diseases Transmitted from Animals to Man, 1613
Anoscope, Die Prokto-Sigmoskopie, 1613
Anthropology, Medizinische Anthropologie, 1371
Aphasia, Vom Lokalisationsproblem der artikulierten Sprache, 1769
Apoplexies, Die Arten der Schlaganfälle des Gehrins und Ihre Entstehung, 1371
Apples, Antiscurvy Vitamin in, 1199
Arkwright, J. A., System of Bacteriology in Relation to Medicine, 1694
Arteries, Die Verästelung der Arteria renalis in der Niere des Menschen, 1693
Arteries, Síndrome de oclusión coronaria, 820
Arthritis, Die Knochen- und Gelenktuberkulose, 1992
Assyria, The Beginnings, 365
Athletes, Ergebnisse der sportärztlichen Untersuchungen bei den IX Olympischen Spielen *in Amsterdam,* 1928, 1450
Aub, J. C., Harvey Lectures, 290
Auclair, J., Vaccination préventive et curative du cobaye et du lapin contre la tuberculose *humaine,* 618
Auerbach, E. F., History of Medicine in Nebraska, 887
Auscultation, Die Betrachtung und Betastung des Brustkorbs bei Lungenkranken, 1286
Axtell, L. E., Grow Thin on Good Food, 1528
Bacteria, Handbuch der pathogenen Mikroorganismen, 224; 364; 365; 687; 819
Bacteria, Physiology and Biochemistry of, 1122
Bacteria, Report on Study of Nasopharyngeal *Bacterial Flora,* 1770
Bacterial Products, Memoranda on the International Standardization of, 149
Bacteriology, Applied, for Nurses, 1451
Bacteriology, Compilation of Culture Media for the Cultivation of Microorganisms, 1043
Bacteriology, Handbuch der pathogenen Mikro*organismen,* 1449
Bacteriology, Principles of, 1770
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Bacteriology, Text Book of Pathology Including, 617
Baker Lectureship, Applications of Organic Chemistry to Biology and Medicine, 435
Ballenger, W. L., Diseases of Nose, Throat and Ear, Medical and Surgical, 687
Banerjee, D. N., Text Book of Pathology, 617
Banerji, F., Handbook of Snake-Bite, 149
Barger, G., Some Applications of Organic Chemistry to Biology and Medicine, 435
Basset, A., La rachianesthésie, 69
Battro, A., Síndrome de oclusión coronaria, 820
Baudry, C., Formulaire de thérapeutique clinique, 365
Bayly, H. W., Venereal Disease, 224
Beaumont Foundation Lectures, Behavior Patterns of the Alimentary Tract, 1042
Beckman, H., Treatment in General Practice, 1285
Béclère, C., La perméabilité et les obturations *tubaires,* 147
Béclère, H., Radiologie clinique du tube digestif, 821
Beer, E., Diseases of the Urinary Tract in Children, 1286
Behavior Patterns of the Alimentary Tract, 1042
Behavior, Psychiatric Study of Problem Children, 553
Berberich, J., Die Behandlung der Ohren-, Nasen- und Halskrankheiten, 956
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Bergstrand, H., Über die akute und chronische gelbe Leberatrophie, 1612
Berkeley, C., editor, Diseases of Women, 1371
Bernhard, O., Le traitement de la péritonite tuberculeuse par la lumière, 364
Bethe, A., editor, Handbuch der normalen und pathologischen Physiologie, 1695
Biancani, E., La valeur prophylactique des rayons ultra-violets, 361
Biancani, H., La valuer prophylactique des rayons ultra-violets, 364
Biliary System, Das Für und Wider der chirurgischen Behandlung des Gallenleidens, 365
Biliary Tract, Diagnosis and Treatment of Diseases of, 224
Binet, L., La rate organe réservoir, 1015
Bio-Chemistry, Clinical, 1150
Biochemistry, Elementary Practical, 1449
Biographies, Plarr's Lives of the Fellows of *Royal College of Surgeons of England,* 1527
Biologic Products, Memoranda on the International Standardization of, 149
Biological Basis of Human Nature, 1992
Biology, Die Biologie der Person, 291
Biology, Human, and Racial Welfare, 147
Biology, Some Applications of Organic Chemistry to, 435
Birth Control Clinics, 1529
Blackwater Fever, Malarial Nephritis, 149
Bland-Sutton, J., The Story of a Surgeon, 1613
Blanton, W. B., Manual of Normal Physical Signs, 1529
Blindness, Prevention of, 959
Blood, Diagnosis and Treatment of Diseases of, 224
Blood, Die Regulierung des Blutkreislaufes gleichzeitig ein Beitrag zur Physiologie des vegetativen Nervensystemes, 617
Blood, Handbuch der pathogenen Mikroorganismen, 224
Blood, Hemato-Respiratory Study of 101 Consecutive Cases of Stammering, 1121
Blood, La fisiopatologia clinica e sperimentale della lipemia, 436
Blood, Les groupes sanguins, schémas et applications pratiques, 1769
Blood Picture and Its Clinical Significance (Including Tropical Diseases), 148
Blood Pressure, Diagnosis and Treatment of Variations in, 224
Blood Pressure, Die Hypertonickrankheiten, 1992
Blood Pressure, Hypertension, 1771
Blood Pressure, Les Hypotensions aiguës et subaiguës, 1201
Blood Vessels, Le neurosi del cuore e dei vasi *sanguigni e loro cura,* 1286
Bluemel, C. S., Mental Aspects of Stammering, 1201
Bodansky, M., Introduction to Physiological *Chemistry,* 1770
Bodies, A Survey of Law Concerning Dead Human Bodies, 1611
Body, Yourself, Inc.: The Story of the Human Body, 1451
Bolduan, C. F., Applied Bacteriology for Nurses, 1451
Bone Conduction, Clinical and Experimental Examinations in Patients Suffering from Mb. Menièri, 958
Bones, Die Chirurgie, 618, 1611
Bones, Die Knochen- und Gelenktuberkulose, 1992
Bones, L'ostéo-synthése métallique dans les Fractures diaphysaires, 889
Bones, Physiologie pathologique, chirurgicale; inflammations, effets des traumatismes, 1121
Bourne, G., Principles of Clinical Pathology in Practice, 616
Bracewell, M. F., The Antiscurvy Vitamin in Apples, 1199
Brain, Die Arten der Schlaganfälle Gehirns und Ihre Entstehung, 1371
Brain, Die zentrale Abstimmung der Sehsphäre, 1287
Bread: A Collection of Popular Papers on Wheat, Flour and Bread, 364
Breast, Cancer of, 958
Bresard, G., Le traitement de la péritonite tuberculeuse par la lumière, 364
Brockman, E. P., Congenital Club-Foot (Talipes Equinovarus), 1450
Brody, Le traitement de la péritonite tuberculeuse par la lumière, 364
Bronchopneumonia, Les broncho-pneumonies chez l'enfant ou pneumonies en foyers, 888
Brown, S., Psychiatric Study of Problem Children, 553
Brown, W. H., Harvey Lectures, 290
Brown, W. L., Physiological Principles in Treatment, 1287
Brückner, A., editor, Kurzes Handbuch der Ophthalmologie, 888
Brugsch, T., editor, Die Biologie der Person, 291
Buchanan, R. E., Physiology and Biochemistry of Bacteria, 1122
Bucura, C., Die entzündlichen Erkrankungen der weiblichen Geschlechtsorgane, 887
Bufano, M., La Fisiopatologia clinica e sperimentale della lipemia, 436
Buhler, C., The First Year of Life, 1771
Bumke, O., Handbuch der Geisteskrankheiten, 436; 1613
Burial, Survey of Law Concerning Dead Human Bodies, 1611
Burns: Types, Pathology and Management, 1286
Burr, C. B., editor, Medical History of Michigan, 819
Bursae, physiologie pathologique, chirurgicale; inflammations, effets des traumatismes, 1121
Busquet, P., Aphorismes de médecine clinique, 1285
Buytendijk, F. J. J., editor, Ergebnisse der sportärztlichen Untersuchungen bei den IX. Olympischen Spielen in Amsterdam, 1928, 1450
Cadavers, A Survey of Law Concerning Dead Human Bodies, 1611
California Academy of Medicine, History of, 1692
Camis, M., Physiology of Vestibular Apparatus, 1936
Campbell, D., Handbook of Therapeutics, 1858
Campondonico, R. C., Dietetica, 889
Cancer, Die Isaminblautherapie der bösartigen Geschwülste, 751
Cancer; Maladie des cicatrices, 618
Cancer, Nouveau traité de médicine, 686
Cancer of Breast, 958
Cancer of Larynx, 1859
Cancer Process, 1528
Cancer, Sonderbände zur Strahlentherapie, 149
Cancer, Study of Coal-Tar Pitch, 553
Cancer, Traitement du cancer endolaryngé, 290
Cannabis indica, Un révélateur du subconscient; Le Haschich, 821
Canuyt, G., L'anesthésie locale en oto-rhino-laryngologie, 365
Carrié, P. A., Le diabète sucré son traitement, 1527
Cerebrospinal Fluid, Le liquide céphalo-rachidien, 69
Cerebrospinal Fluid, Les plexus choroïdes: Anatomie, physiologie, pathologie, 958
Chandler, A. C., Introduction to Human Parasitology, 364
Chemistry, Allen's Commercial Organic Analysis, 1287
Chemistry, Introduction to Physiological Chemistry, 1770
Chemistry, Leçons de physico-chimie, 686
Chemistry, Some Applications of Organic Chemistry to Biology and Medicine, 435
Chemotherapy, Recent Advances in, 1770
Chen, K. K., Ephedrine and Related Substances, 1528
Chesky, V. E., Minor Surgery, 291
Chest Roentgenologically Considered, 749
Child Psychology, The First Year of Life, 1771
Children Are Like That, 1771
Children, Care and Feeding of, 225
Children, Chirurgie des Kindesalters, 290
Children, Handbuch der Kindertuberkulose, Band II, 1858
Children, Praktisches Lehrbuch der Kindertuberkulose, 553
Children, Psychiatric Study of Problem Children, 553
Choroid plexuses, Les plexus choroïdes: Anatomie, physiologie, pathologie, 958
Christian, H. A., editor, Oxford Monographs on *Diagnosis and Treatment,* 224
Cicatrix, Le cancer: Maladie des cicatrices, 618
Clark, A. H., New Evolution: Zoogenesis, 1771
Clinical Medicine, System of, 1770
Clinical Surgery, Clinica quirurgica, 751
Clinics, Seventy Birth Control Clinics, 1529
Club-Foot, Congenital (Talipes Equinovarus), 1450
Coakley, C. G., Manual of Diseases of Nose and Throat, 821
Coal-Tar, Study of Coal-Tar Pitch, 553
Coblentz, W. W., Choix d'une unité de mesure pour les rayons ultra-violets utilisés en médecine, 364

Book Notices—Continued
Coffin, M., Les vomissements chez le nourrisson: Sténoses pyloriques et duodénales, 1693
Collections, Medical Service: Its relation to Collections: How to Collect, 617
Colledge, L., Cancer of the Larynx, 1859
Collins, J., Insomnia: How to Combat It, 1695
Conglutinins, Handbuch der pathogenen Mikroorganismen, 687
Constitution, Disease and the Man, 1369
Cordey, F., Formulaire de thérapeutique clinique, 365
Cornea, Stereoskopischer Atlas der äusseren Erkrankungen des Auges, 1123
Corner, G. W., Anatomy, 1936
Coronary, Síndrome de oclusión coronaria, 820
Corvisart, Napoleon's physician, Aphorismes de médecine clinique, 1285
Court, The Doctor in Court, 436
Cowdry, E. V., editor, Human Biology and Racial Welfare, 147
Cressy, E., Discoveries and Inventions of the Twentieth Century, 1527
Cretinism, Handbuch der Geisteskrankheiten, 436
Crowe, H. W., Handbook of Vaccine Treatment of Chronic Rheumatic Diseases, 1991
Cruelty, Sadism and Masochism: The Psychology of Hatred and Cruelty, 1612
Crumbine, S. J., The Most Nearly Perfect Food: The Story of Milk, 225
Culture Media, Compilation of, for the Cultivation of Microorganisms, 1043
Currie, J. R., A Textbook of Hygiene, 1859
Dausset, H., Le traitement des rhumatismes par less rayons infra-rouges, 364
Davidson, L. S. P., Pernicious Anemia, 1121
Davies, H. M., Surgery of the Lung and Pleura, 148
Dawson, W. R., The Beginnings: Egypt and Assyria, 365
Dederding, D., Clinical and Experimental Examinations in Patients Suffering from Mb. Menièri, 958
Dentistry, Prosthetic Dentistry, 1450
Dermatology, Principles and Practice of, 224
de Souza, D., Manual of Physiology for Students and Practitioners, 1859
Determann, editor, Umstimmung als Behandlungsweg, 1448
Devil, Historical Critical and Medical Study, 1449
Dextrocardias: Subsidio ao seu estudo clinico e electrocardiographico, 889
Diabetes: Directions for Treatment by Insulin and Diet, 687
Diabetes, Le diabète sucré son traitement, 1527
Diabetes, Pathology of Diabetes Mellitus, 1936
Diabetes, Über Behandlung and Auffassung des Diabetes Mellitus, 821
Diagnosis, Manual of Normal Physical Signs, 1529
Diagnosis, Manual of Physical and Clinical Diagnosis, 888
Diagnosis, Normal Facts in, 617
Diagnosis, Oxford Monographs on Diagnosis and Treatment, 224
Diagnosis, Text Book of Pathology, 617
Diathermy Medical and Surgical in Oto-Laryngology, 1857
Diet, Grow Thin on Good Food, 1528
Diet, Nahrungsmittel-Tabelle zur Aufstellung und Berechnung von Diätverordnungen für Krankenhaus, Sanatorium und Praxis, 1529
Diet, The Normal Diet, 1285
Dietary of Health and Disease, 1370
Dietetica, 889
Dietetics for High Schools: Textbook in Nutrition and Food Economics, 1937
Dietetics, Fundamentals of, 1769
Diets, Intern's Handbook, 1369
Digestive Tract, Radiologie clinique du tube digestif, 821
Discoveries and Inventions of the Twentieth Century, 1527
Disease, Anatomische Organkrankheiten aus seelischer Ursache, 617
Disease and the Man, 1369
Disease, Mouth Infections and Their Relation to Systemic Diseases, 957
Disease, The Devil: An Historical Critical and Medical Study, 1449
Disease, Trauma, Disease, Compensation, 1769
Disease, Ultra-Violet Rays in Treatment and Cure of, 618
Diseases Transmitted from Animals to Man, 1613
Dixon, C. M., Children Are Like That, 1771
Doctor in Court, 436
Drachter, R., Chirurgie des Kindesalters, 290
Draper, G., Disease and the Man, 1369
Drouet, P. L., L'hérédo-syphilis mentale, 957
Drugs, Essais et dosages biologiques des substances médicamenteuses, 1043
Drugs, Intern's Handbook, 1369
Drugs, Medicinal, of India, 1612
Drugs, Useful Drugs, 1368
Duculng, J., Phlébites thromboses et embolies post-opératoires, 687
Dumas, G., Nouveau traité de psychologie, 1042
Dumas, M. A., Les hypotensions aiguës et subaiguës, 1201
Dunham, G. C., Military Preventive Medicine, 1612
Duodenum, Die entzündliche Grundlage der typischen Geschwürsbildung im Magen und Duodenum, 435
Duodenum stenosis, Les vomissements chez le nourrisson, 1693
Duval, P., Radiologie clinique du tube digestif, 821
Dyspepsia, Nervous Indigestion, 1935
Ear, Clinical and Experimental Examinations in Patients Suffering from Mb. Menièri Including Study of Problem of Bone Conduction, 958
Ear, Die Behandlung der Ohren-, Nasen- und Halskrankheiten in der Allgemeinpraxis, 956
Ear, Diseases of, 687
Ear, Modern Otology, 290
Eclampsia, Improved Prophylactic Method in Treatment of 750
Economics, Medical Service: Its relation to Collections: How to Collect, 617
Education, Medical, Methods and Problems (Sixteenth Series), 553
Edwards, J. T., The Problem of Rinderpest in India, 291
Eggleston, C., Useful Drugs, 1368
Egorov, Sertse I Grippoznoe Vospalenie Zubov I Mindalin, 1935
Egypt, Beginnings: Egypt and Assyria, 365
Eisenberg, A. A., Principles of Bacteriology in Fifteen Lessons, 1695
Electricity, Action of Muscles Including Muscle Rest and Muscle Re-education, 1044
[illegible] *lied,* 291
[illegible]: Index to Electro and [illegible]
Ellinger, A., editor, Handbuch der normalen und pathologischen Physiologie, 1695
Elwyn, A., Yourself, Inc.: The Story of the Human Body, 1451
Embden, G., editor, Handbuch der normalen und pathologischen Physiologie, 1695
Embolism, Phlébites thromboses et embolies post-opératoires, 687
Embryology, Introduction to Vertebrate Embryology, 1200
Embryology, Methods and Problems of Medical Education, 553
Encyclopedia, Neue Deutsche Klinik, 1369
Endocrine, Collected Publications from the Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine, 887
Endocrines, Handbuch der inneren Sekretion, 1044; 1451
Endocrinology, Protokoly Zasedaniy za 1928-1929 Vypusk 5, 820
Engel, S., editor, Handbuch der Kindertuberkulose, Band II., 1858
Ephedrine and Related Substances, 1528
Epilepsy, Sthenics: The Chord Invisible, 618
Epithelioma-Producing Factor, Study of Coal-Tar Pitch, 553
Érythrémies de l'altitude, 1200
Ethnology, Growing up in New Guinea, 1370
Eugenics, Sterilization for Human Betterment. 434
Evolution, New: Zoogenesis, 1771
Exercises, Practical Massage and Corrective Exercises with Applied Anatomy, 364
"Expert," 436
Eye, Adaptation of, Its Relation to Critical Frequency of Flicker, 685
Eye, Affections of, in General Practice, 820
Eye, Kurzes Handbuch der Ophthalmologie, 888
Eye, Manual of Diseases of, 1044
Eye, Slit-Lamp Microscopy of Living Eye, 820
Eye, Untersuchungen über das Dunkelsehen mit Tscherning's photometrischen Gläsern, 1042
Fairbairn, J. S., A Textbook for Midwives, 1200
Fallopian Tubes, La perméabilité et les obturations tubaires, 147
Farr, R. E., Practical Local Anesthesia and Its Surgical Technic, 68
Fasting, Die wissenschaftlichen Grundlagen der Hunger- und Durstkuren, 1044
Fat metabolism, Handbuch der inneren Sekretion, 1044
Fearing, F., Reflex Action, 365
Feeblemindedness, Handbuch der Geisteskrankheiten, 436
Fees, Medical Service: Its relation to Collections; How to Collect, 617
Felding, S., *Experimentelle Bidrag til Spørgsmaalet om Hypophysens Livsvigtighed,* 1857
Fellner, O. O., Die Therapie der Wiener Spezialärzte, 1937
Findlay, G. M., Recent Advances in Chemotherapy, 1770
Finesilver, B., Normal Facts in Diagnosis, 617
Fish, Candirú: Only Vertebrate Parasite of Man, 1771
Flicker, Adaptation of Eye. Its relation to Critical Frequency of, 685
Flour, Bread: A Collection of Popular Papers on, 364
Food, Grow Thin on Good Food, 1528
Food, Nahrungsmittel-Tabelle zur Aufstellung und Berechnung von Diatverordungen, 1529
Food, Physiology of Oral Hygiene and Recent Research with Special Reference to, 819
Food, The Most Nearly Perfect Food. The Story of Milk, 225
Foot, Congenital Club-Foot (Talipes Equinovarus), 1450
Forgue, E., La rachianesthésie, 69
Formulaire de thérapeutique clinique, 365
Fossler, A. E., History of the Orleans Parish Medical Society, 1878-1928, 1200
Fowler, J. K., Sthenics, 618
Fracastorius, Hieronymi Fracastorii de Contagione et Contagiosis Morbis et eorum Curatione, Libri III, 1694
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Frantz, R., L'ostéo-synthèse métallique dans les fractures diaphysaires, 889
Fraser, A. J., Trauma, Disease, Compensation. 1769
Fulmer, E. I., Physiology and Biochemistry of Bacteria, 1122
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Gager, L. T., Hypertension, 1771
Gallbladder, Das Für und Wider der chirurgischen Behandlung des Gallenleidens, 365
Gallbladder, Radiographie néphro-cholécystique, 750
Galli, G., Le neurosi del cuore e dei vasi sanguigni e loro cura, 1286
Garcon, M., The Devil: An Historical Critical and Medical Study, 1449
Gastro-Intestinal Tract, Thérapeutique médicale, 1528
Gates R. R., Heredity in Man, 1450
Gellhorn, G., Gynecology for Nurses, 617
Genitals, Die Wechselbeziehungen zwischen der Tuberkoloseerkrankung und den Generat*ionsvorgängen im weiblichen Organismus,* 959
Genitals, Sonderbände zur Strahlentherapie, 149
Giglioli, G., Malarial Nephritis, 149
Gillett, L. H., Dietetics for High Schools, 1937
Glandular Fever, Das lymphaemoide Drüsenfieber, 751
Glanzmann, E., Das lymphaemoide Drüsenfieber, 751
Glasses, Refraction of Human Eye, 1858
Goiter, Report of International Conference on Goiter in Berne, 1450
Goldhamer, K., Radiologische Praktika, 1859
Gonococcal Infection in Male, 686
Gonorrhea, Die entzündlichen Erkrankungen der weiblichen Geschlechtsorgane, 887
Gordon-Taylor, G., Dramatic in Surgery, 617
Gorham, L. W., Diagnosis and Treatment of Diseases of the Blood, 224
Gosney, E. S., Sterilization for Human Betterment, 434
Gossmann, J. R., Chirurgie des Kindesalters, 290
Gottstein, A., editor, Handbücherei für das Gesamte Krankenhauswesen, 1449
Goulden, C., Slit-Lamp Microscopy of Living Eye, 820
Granzo, J., Die Wechselbeziehungen zwischen der Tuberkoloseerkrankung und den Generationsvorgängen im weiblichen Organismus, 959
Gray, H., Anatomy of the Human Body, 1526
Grotjahn, A., editor, Ergebnisse der Sozialen. *Hygiene und Gesundheitsfürsorge,* 1935
Groves, E. W. H., Synopsis of Surgery, 1013
Grow Thin on Good Food, 1528
Growing up in New Guinea, 1370
Gudger, E. W., Candirú: Only Vertebrate Parasite of Man, 1771
Günther, H., Die wissenschaftlichen Grundlagen der Hunger- und Durstkuren, 1044
Gulland, G. L., Pernicious Anemia, 1121
Guy, J., Hygiene for Nurses, 957
Gynecology, Die entzündlichen Erkrankungen der weiblichen Geschlechtsorgane, 887
Gynecology, Diseases of Women, 1371
Gynecology for Nurses, 617
Haiti, History of Haitian Medicine, 1859
Hall, P., Ultra-Violet Rays in Treatment and Cure of Disease, 618
Hallux valgus, Die Behandlung des Hallux valgus, 1044
Harris, C. L., Slit-Lamp Microscopy of Living Eye, 820
Harris, M. C., Normal Facts in Diagnosis, 617
Harvey Lectures, 1928-29, 290
Harvey-Gibson, R. J., Two Thousand Years of Science, 1119
Hashish, Un révélateur du subconscient, 821
Hatcher, R. A., Useful Drugs, 1368
Hatred, Sadism and Masochism, The Psychology of, 1612
Hay, A., Photographisches Praktikum für Mediziner und Naturwissenschaftler, 118
Head, Radiologische Praktika, 1859
Health, Ergebnisse der Sozialen. Hygiene und Gesundheitsfürsorge, 1935
Health, Personal and Community, 1119
Health, Symposium on Physical Education and, 1199
Heart, Applied Electrocardiography, 291
Heart, Das dextrocardias: Subsidio ao seu estudo clinico e electrocardiographico, 889
Heart, Ergebnisse der sportärztlichen Untersuchungen bei den IX. Olympischen Spielen in Amsterdam, 1928, 1450
Heart, Le neurosi del cuore e dei vasi sanguigni e loro cura, 1286
Heart, Sertse I Grippoznoe Vospalenie Zubov I Mindalin, 1935
Heart, Ueber die Dekompensation der erworbenen Herzklappenfehler und ihre Behandlung, 118

Book Notices—Continued
Heiberg, K. A., Über Behandlung und Auffassung des Diabetes mellitus, 821
Hematology, Ricerche anatomo-cliniche su alcune emopatie, 1369
Henderson, D. K., Text-Book of Psychiatry for Students and Practitioners, 1771
Hendrickson, A., Medical Service: Its Relation to Collections: How to Collect, 617
Héraux, A., Les broncho-pneumonies chez l'enfant ou pneumonies en foyers, 888
Heredity in Man, 1450
Hertzler, A. E., Minor Surgery, 291
Hess, W. R., Die Regulierung des Blutkreislaufes gleichzeitig ein Beitrag zur Physiologie des vegetativen Nervensystemes, 617
Hickman, C. P., Laboratory Manual in College Physiology, 1612
Hill, Measuren [illegible] Ultra-Violet Ra[illegible]
Hinsie, L. E., [illegible] 1771
Hirsch, M., editor, Handbuch der inneren Sekretion, 1044: 1451
Histology, Essentials of, 291
Histology, Methods and Problems of Medical Education, 553
Histology, Text-Book of, 1936
Hoff, F., Unspezifische Therapie und natürliche Abwehrvorgänge, 1043
Hoff, H., Die zentrale Abstimmung der Sehsphäre, 1287
Holfelder, H., editor, Ergebnisse der medizinischen Strahlenforschung, 616
Holt, L. E., Jr., Care and Feeding of Children, 225
Holthusen [illegible] der medizinischer [illegible]
Hospital, [illegible] esamte Krankenhauswesen, 1449
Hou-Jensen, H M., Die Verästelung der Arteria renalis in der Niere des Menschen, 1693
Hoyle, E., The Antiscurvy Vitamin in Apples, 1199
Hoyt, H. F., A Frontier Doctor, 1694
Huldschinsky, La valeur prophylactique des rayons ultra-violets, 364
Hull, T. G., Diseases Transmitted from Animals to Man, 1613
Human Nature, Biological Basis of, 1992
Hunger, Die wissenschaftlichen Grundlagen der Hunger- und Durstkuren, 1044
Huntly, M. F., Principles of Bacteriology in Fifteen Lessons, 1695
Hygiene for Nurses, 957
Hygiene, Personal and Community Health, 1449
Hygiene, Textbook of, 1859
Hyman, Abraham, Diseases of the Urinary Tract in Children, 1286
Hyman, Albert S., Applied Electrocardiography, 291
Hypertension, 1771
Immunity, Principles of Bacteriology and, 1770
India, The Problem of Rinderpest in, 291
Industrial Accidents, La práctica médica en los accidentes del trabajo, 68
Infancy, Clinical Nutrition and Feeding in, 1122
Infant Nutrition, 1448
Infants, First Year of Life, 1771
Infants, Les broncho-pneumonies chez l'enfant ou pneumonies en foyers, 888
Infants, Les vomissements chez le nourrisson, 1693
Infants, Nutrition of Healthy and Sick, 225
Infectious Diseases, Naissance, vie et mort des maladies infectieuses, 1287
Influenza, Sertse I Grippoznoe Vospalenie Zubov I Mindalin, 1935
Infra-Red Rays, Le traitement des rhumatismes par les rayons infra-rouges, 364
Insanity, The Devil: An Historical Critical and Medical Study, 1449
Instruments, Guide to Surgical Instruments and Objects i[illegible]
Insurance, [illegible] amination: Modern [illegible] Lives, 435
Internal Med[illegible] Lehrbuch der speziellen Pathologie und Therapie der *inneren Krankheiten, 553*
International Conference on Goiter in Berne, Report of, 1450
International Congress of Actinology, transactions, 364
International Congress of World League for Sexual Reform, 1451
Intern's Handbook, 1369
Inventions and Discoveries of the Twentieth Century, 1527
Iodized Oil, La perméabilité et les obturations tubaires, 147
Iodized Oils as an Aid to the Diagnosis of Lesions of the Spinal Cord, 1199
Irvine-Jones, E. I. M., Handbook of Pediatric Procedures, 1991
Isaminblautherapie der bösartigen Geschwülste, 751
Jacobs, C. M.: Doctor, Tell Me! 1771
Jaundice, Infective, Handbuch der pathogenen Mikroorganismen, 365
Jenner, Edward, and the Discovery of Smallpox Vaccination, 1528
Jennings, H. S., Biological Basis of Human Nature, 1992
Joints, Die Chirurgie, 1611
Joints, Physiologie pathologique, chirurgicale, 1121
Jones, R., Orthopedic Surgery, 148
Jordan, H. E., Text-Book of Histology, 1936
Joseph Purcell Research Memorial, Mouth Infections, 957
Joubiot, J., L'anesthésie locale en oto-rhino-[illegible]
[illegible] isse der medizini-[illegible] 616
[illegible] Betrachtung und Betastung (Inspektion und Palpation) des Brustkorbs bei Lungenkranken, 1286
Keller, J. C., Modern Otology, 290
Keller, P., Choix d'une unité de mesure pour *les rayons ultra-violets utilisés en médecine*, 364
Keller, P., Diagnose und Therapie der Hauttuberkulose in der Praxis, 225
Kidneys, Die Verästelung der Arteria renalis in der Niere des Menschen, 1693
Kidneys, Radiographie néphro-cholécystique, 750
Kirschner, M., editor, Die Chirurgie, 617; 618; 1611
Klemperer, F., editor, Neue Deutsche Klinik, 1369
Klemperer, G., editor, Neue Deutsche Klinik, 1369
Kober, George Martin, Reminiscences of, 1936
Koblanck, A., Die Nase als Reflexorgan des autonomen Nervensystems, 749
Koby, F. E., Slit-Lamp Microscopy of Living Eye, 820
Kolle, W., editor, Handbuch der pathogenen Mikroorganismen, 224; 364; 365; 687; 819; 1449
Konjetzny, G. E., Die entzündliche Grundlage der typischen Geschwürsbildung im Magen und Duodenum, 435
Kraus, R., editor Handbuch der pathogenen Mikroorganismen, 224; 364; 365; 687; 819; 1449
Kugelmass, I. N., Clinical Nutrition and Feeding in Infancy and Childhood, 1122
Kumm, H. W., Geographical Distribution of Malaria Carrying Mosquitoes, 365
Kurtzahn, H., Kleine Chirurgie, 364
Kylin, E., Die Hypertoniekrankheiten, 1992
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Laboratory Manual in College Physiology, 1612
Landesmann, E., Die Therapie an den Wiener Kliniken, 69
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Larynx, Traitement du cancer endolaryngé, 290
Laws, A Survey of the Law Concerning Dead Human Bodies, 1611
Lazarus, P., Tratado general de radiología Médica, biología, patología y terapéutica, 618
League of Nations, Memoranda on the International Standardization of Therapeutic Sera and Bacterial Products, 149
League of Red Cross Societies, Prevention of Blindness, 959
Ledent, La valeur prophylactique des rayons ultra-violets, 364
Ledoux-Lebard, La radiothérapie pénétrante, 1121
Leprosy, Les aliénés et les correctionnaires á Saint-Lazare au XVII^e^ et au XVIII^e^ siècles, 1122
Leriche, R., Physiologie pathologique, chirurgicale; inflammations, effects des traumatismes, Réparation des plaies, greffes, maladies des os, des articulations, des vaisseaux et des nerfs, 1121
Lesné, E., Les vomissements chez le nourrisson: Sténoses pyloriques et Duodénales, 1693
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Léry, J., Essais et dosages biologiques des substances médicamenteuses, 1043
Lewy, F. H., editor, Die Biologie der Person, 291
Lieferant, H., Doctor's Wives, 365
·Lieferant, S., Doctor's Wives, 365
Life, Was ist das Leben? Forschungen und Gedanken, 434
Lipemia, La fisiopatologia clinica e sperimentale della lipemia, 436
Liver, Diagnosis and Treatment of Diseases of, 224
Liver, Über die akute und chronische gelbe Leberatrophie mit besonderer Berücksichtigung ihres epidemischen Auftretens in Schweden im Jahre 1927, 1612
Lockhart-Mummery, P., The After-Treatment of Operations, 292
Loêper, M., Thérapeutique médicale. I. Maladies du tube digestif, 1528
Londres, G. S., Das dextrocardias, 889
Lovett, R. W., Orthopedic Surgery, 148
Lucy, Le traitement des rhumatismes par les rayons infra-rouges, 364
Lumière, A., *Le cancer: maladie des cicatrices*, 618
Lungs, Die Betrachtung und Betastung (Inspektion und Palpation) des Brustkorbs bei Lungenkranken, 1286.
Lungs, Études radiologiques sur le poumon et le médiastin, 1122
Lungs, Surgery of the Lung and Pleura, 148
Lyle, H. W., Manual of Physiology, 1859
Lyon, G., Les thérapeutiques nouvelles, 1200
Lythgoe, R. J., Adaptation of the Eye, 685
McCrae, T., *(Osler's) Principles and Practice of* Medicine, 1769
Mackenzie, C., Action of Muscles Including Muscle Rest and Muscle Re-education, 1044
McKenzie, D., Diathermy Medical and Surgical in Oto-Laryngology, 1857
MacLaren, J. P., Medical Insurance Examination, 435
MacNevin, M. G., Mouth Infections and Their Relation to Systemic Diseases, 957
McPheeters, H. A., Varicose Veins with Special Reference to the Injection Treatment, 291
Malaria, Fourth Factor in Etiology of, 1858
Malaria, Geographical Distribution of the Malaria Carrying Mosquitoes, 365
Malaria, Handbuch der pathogenen Mikroorganismen, 819
Malarial Nephritis, 149
Marchionini, A., Diagnose und Therapie der Hauttuberkulose in der Praxis, 225
Marriott, W. M., Infant Nutrition, 1448
Martius, H., editor, Ergebnisse der medizinischen Strahlenforschung, 616
Masochism, Sadism and Masochism, 1612
Massage, Action of Muscles Including Muscle Rest and Muscle Re-education, 1044
Massage, Practical, and Corrective Exercises with Applied Anatomy, 364
Materia Medica, A Text-Book of Materia Medica for Nurses, 1770
Materia Medica, Medicinal Drugs of India, 1612
Maternal Health, National Committee on Maternal Health, Seventy Birth Control Clinics, 1529
Maxwell, I., Clinical Bio-Chemistry, 1450
May, C. H., Manual of Diseases of the Eye, 1044
Mead, M., Growing up in New Guinea, 1370
Mediastinum, Études radiologiques sur le poumon et le médiastin, 1122
Medical History of Michigan, 819
Medical Research Council, Reports of Committee upon Physiology of Vision, 685; 750
Medical Service: Its relation to Collections: How to Collect, 617
Medicine, A Textbook of the Practice of, 1370
Medicine, Aphorismes de médecine clinique, 1285
Medicine, history, Beginnings: Egypt and Assyria, 365
Medicine, history, Edward Jenner and the Discovery of Smallpox Vaccination, 1528
Medicine, history, Hieronymi Fracastorii de Contagione et Contagiosis Morbis et eorum Curatione, Libri III., 1694
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Medicine, History of the California Academy of Medicine, 1870 to 1930, 1692
Medicine, history, Viaggi ed escursioni scientifiche di Lazzaro Spallanzani, 1612
Medicine in British Isles, 1936
Medicine, Medizinische Anthropologie, 1371
Medicine, (Osler's) Principles and Practice of Medicine, 1769
Medicine, Neu Deutsche Klinik, 1369
Medicine, Some Applications of Organic Chemistry to, 435
Medicolegal, La Práctica médica en los accidentes del trabajo, 68
Medicolegal, The Doctor in Court, 436
Medicolegal, "The Expert," 436
Medicolegal, Survey of the Law concerning Dead Human Bodies, 1611
Medicolegal, Trauma, Disease, Compensation, 1769
Megaw, J. W. D., Tropical Medicine, 959
Ménièrés Disease, Clinical and Experimental Examinations in, 958
Meningitis, Iodized Oils as an Aid to the Diagnosis of Lesions of the Spinal Cord, 1199
Mental Aspects of Stammering, 1201
Mental Defectives, Sterilization for Human Betterment, 434
Mental Hygiene, Some Social Aspects of, 1859
Mérat, F. V., Aphorismes de médecine clinique, 1285
Metabolism, Handbuch der inneren Sekretion, 1044
Meunier, L., Traitement médical des affections stomacales, 1528
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Michelet, L., La vie d'Ambroise Paré (Chirurgien du Roy, écrivain), 1043
Michigan, Medical History of, 819
Michon, P., Les groupes sanguins, 1769
Microscopy, Slit-Lamp Microscopy of the Living Eye, 820
Midwives, Textbook for, 1200
Military Preventive Medicine, 1612
Milk, The Most Nearly Perfect Food: The Story of, 225

Book Notices—Continued
Ministry of Health, Report on Study of Nasopharyngeal Bacterial Flora, 1770
Mirizzi, P. L., Clinica quirurgica, 751
Mitchell, C. A., editor, Allen's Commercial Organic Analysis, 1287
Möller, H. U., Untersuchungen über das Dunkelsehen mit Tscherning's photometrischen Gläsern, 1042
Mohan, B. S., Medicinal Drugs of India, 1612
Mohr, F., Psychotherapie bei organischen Erkrankungen, 1201
Monge, C., Les érythrémies de l'altitude: Leurs *rapports avec la maladie de Vaquez*, 1200
Monrad-Krohn, G. H., Clinical Examination of Nervous System, 751
Morphine Habit and its Painless Treatment, 1694
Mosenthal, H. O., The Diagnosis and Treatment of Variations in Blood Pressure and Nephritis, 224
Mosquitoes, Geographical Distribution of the Malaria Carrying, 365
Mouth Infections and Their Relation to Systemic Disease, 957
Mouth, Physiology of Oral Hygiene, 819
Much, H., Was ist das Leben? Forschungen und Gedanken, 434
Mueller, F., Manual of Physical and Clinical Diagnosis, 888
Mueller, O. C., "The Expert," 436
Muscles, Action of, Including Muscle Rest and Muscle Re-education, 1043
Muscles, *Physiologie pathologique, chirurgicale;* inflammations, effets des traumatismes, 1121
Muse, M. B., Text-Book of Psychology for Nurses, 686
Myxedema, Handbuch der Geisteskrankheiten, 436
Napoleon's physician, Corvisart, Aphorismes de médecine clinique, 1285
Nasal Sinusitis, Chronic, 1857
Nash, J. B., editor, Symposium on Physical Education and Health, 1199
Nasopharynx, Report on Study of Nasopharyngeal Bacterial Flora, 1770
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Nebraska, History of Medicine in, 887
Necropsy, Survey of Law Concerning Dead Human Bodies, 1611
Nephritis, Diagnosis and Treatment of Variations in Blood Pressure and, 224
Nephritis, Malarial, 149
Nerves surgery, Die Chirurgie, 1611
Nervous Indigestion, 1935
Nervous System, Clinical Examination of, 751
Nervous System, Die Chirurgie, 617
Nervous System, Die Nase als Reflexorgan des autonomen Nervensystems, 749
Nervous System, Die Regulierung des Blutkreislaufes gleichzeitig ein Beitrag zur Physiologie des vegetativen Nervensystemes, 617
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Nervous System, Sonderbände zur Strahlentherapie, 1694
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Neurosis, Psychoanalysis of Total Personality, 1935
Neurosyphilis, L'hérédo-syphilis mentale, 957
New and Nonofficial Remedies, 1930, 68
New Guinea, Growing up in New Guinea, 1370
Nichols, I. G., Prosthetic Dentistry, 1450
Nicolle, C., Naissance vie et mort des maladies infectieuses, 1287
von Niessl-Mayendorf, Vom Lokalisationsproblem der artikulierten Sprache, 1769
Nissen, H., Practical Massage and Corrective Exercises with Applied Anatomy, 364
Nissen, R., Die Knochen- und Gelenktuberkulose, 1992
Nobel, E., The Nutrition of Healthy and Sick Infants and Children, 225
Nordmann, O., editor, Die Chirurgie, 617; 618
Norris, C. C., Uterine Tumors, 958
Nose, Die Behandlung der Ohren-, Nasen- und Halskrankheiten in der allgemeinpraxis, 956
Nose, Die Nase als Reflexorgan des autonomen Nervensystems, 749
Nose, Diseases of, 687
Nose, Manual of Diseases of, 821
Nurses, Applied Bacteriology for, 1451
Nurses, Fundamentals of Dietetics, 1769
Nurses, Gynecology for, 617
Nurses, Hygiene for, 957
Nurses, Outline in Obstetrics for, 1693
Nurses, Practical Midwifery for, 1859
Nurses, Principles of Bacteriology in Fifteen lessons, 1695
Nurses, Text-Book of Materia Medica for, 1770
Nurses, Text-Book of Psychology for, 686
Nutrition, Care and Feeding of Children, 225
Nutrition, Clinical Nutrition and Feeding in Infancy and Childhood, 1122
Nutrition, Dietary of Health and Disease, 1370
Nutrition, Infant Nutrition, 1448
Nutrition of Healthy and Sick Infants and Children, 225
Obesity, Grow Thin on Good Food, 1528
Obstetrics, Outline in Obstetrics for Nurses, 1693
Obstetrics, Practical Midwifery for Nurses, 1859
Obstetrics, Textbook for Midwives, 1200
O'Conor, J., Reflections and Operations, 225
Odin, M., Iodized Oils as an Aid to Diagnosis of Lesions of Spinal Cord, 1199
Old Age, Care of Aged Persons in the United States, 1369
Old Age, Klinik und Therapie der Alterskrankheiten dargestellt für den Praktiker, 1044
Oller, A., La práctica médica en los accidentes del trabajo, 68
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Ordway, T., Diagnosis and Treatment of Diseases of the Blood, 224
Orleans Parish Medical Society, History of, 1200
Orthopedic Surgery, 148
Ory, M., Le traitement de la péritonite tuberculeuse par la lumière, 364
Osborne, W. A., Elementary Practical Biochemistry, 1449
Osler's Principles and Practice of Medicine, 1769
Oto-Laryngology, Diathermy Medical and Surgical in, 1857
Otology, Modern Otology, 290
Otorhinolaryngology, Die Behandlung der Ohren-, Nasen- und Halskrankheiten in der Allgemeinpraxis, 956
Otorhinolaryngology, L'anesthésie locale en oto-rhino-laryngologie, 365
Ovaries, Die entzündlichen Erkrankungen der weiblichen Geschlechtsorgane, 887
Oxford Monographs on Diagnosis and Treatment, 224
Oxidation-Reduction Potentials, 1042
Ozone, Practical Index to Electro and Photo Therapy Including an Index of Diseases with Descriptive Techniques, 889
Pack, G. T., Burns: Types, Pathology and Management, 1286
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Parasite, The Candirú, 1771
Parasitology, Introduction to Human Parasitology, 364
Parasitology, Text Book of Pathology Including, *617*
Paré, Ambroise, La vie d'Ambroise Paré (Chirurgien du Roy, écrivain), 1043
Parsonnet, A. E., Applied Electrocardiography, 291
Parsons, R. P., History of Haitian Medicine, 1859
Pascal, E., Un Révélatéur du subconscient: Le Haschich, 821
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Pathology, Strümpell-Seyfarth Lehrbuch der speziellen Pathologie und Therapie der inneren Krankheiten, 553
Pathology, Text Book of, 617
Paul, G. P., A Text-Book of Materia Medica for Nurses, 1770
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Pharynx, Manual of Diseases of Nose and Throat, 821
Phillips, John, The Diagnosis and Treatment of Diseases of the Liver and Biliary Tract, 224
Phlébites thromboses et embolies post-opératoires, 687
Photographisches Praktikum für Mediziner und Naturwissenschaftler, 148
Photometry, Untersuchungen über das Dunkelsehen mit Tscherning's photometrischen Gläsern, 1042
Physical Chemistry, Lecons de physico-chime, 686
Physical Education, Symposium on, 1199
Physical Examination, Medical Insurance Examination, 435
Physical Signs, Manual of Normal, 1529
Physical Therapy, Practical Index to Electro and Photo Therapy Including an Index of Diseases with Descriptive Techniques, 889
Physicians, A Frontier Doctor, 1694
Physicians, Doctors' Wives, 365
Physicians, Medical Service: Its Relation to Collections: How to Collect, 617
Physician, The Doctor in Court, 436
Physiological Chemistry, Introduction to, 1770
Physiological Principles in Treatment, 1287
Physiology, Applied, 1771
Physiology, Laboratory Manual in College Physiology, 1612
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Pighini, G., Viaggi ed escursioni scientifiche di Lazzaro Spallanzani, 1612
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Pitkin, W. B., The Art of Rapid Reading, 1199
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Pleura, Surgery of the Lung and, 148
Pneumonia, Les broncho-pneumonies chez l'enfant ou pneumonies en foyers, 888
Policard, A., Physiologie pathologique, chirurgicale; inflammations, effets des traumatismes, Réparation des plaies, greffes, maladies des os, des articulations, des vaisseaux et des nerfs, 1121
Popenoe, P., Sterilization for Human Betterment, 434
Potter, H. W. Psychiatric Study of Problem Children, 553
Power, D'A., Medicine in British Isles, 1936
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Prausnitz, C., Memoranda on the International Standardization of Therapeutic Sera and Bacterial Products, 149
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Proctoscope, Die Prokto-Sigmoskopie und ihre Bedeutung für die Diagnostik und Therapie der Krankheiten des Rektum und des Sigmoideum, 1613
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Psychiatric Study of Problem Children, 553
Psychiatry, Handbuch der Geisteskrankheiten, 1613
Psychiatry, Text-Book of, 1771
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Psychogenesis, Anatomische Organkrankheiten aus seelischer Ursache, 617
Psychology, Child Psychology, The First Year of Life, 1771
Psychology, Nouveau traité de psychologie, 1042
Psychology, Praxis und Theorie der Individualpsychologie, 1369
Psychology, Reflex Action: A Study in the History of Physiological Psychology, 365
Psychology, Sadism and Masochism: The Psychology of Hatred and Cruelty, 1612
Psychology, Text-Book of Psychology for Nurses, 686
Psychotherapy, Psychotherapie bei organischen Erkrankungen, 1201
Purcell, Joseph Purcell Research Memorial, Mouth Infections and Their Relation to Systemic Diseases, 957
Pylorus, Les vomissements chez le nourrisson, 1693
Racial Welfare, Human Biology and, 147
Radiologische Praktika, 958; 1859
Radiology, Tratado general de radiología médica, biología patología y terapéutica, 618
Radium, Ergebnisse der medizinischen Strahlenforschung, 616
Radium in General Practice, 618
Radium, Sonderbände zur Strahlentherapie, 149
Rea, R. L., Affections of Eye in General Practice, 820
Read, J. M., History of the California Academy of Medicine, 1870 to 1930, 1692
Reading, The Art of Rapid Reading, 1199
Rectum, Die Prokto-Sigmoskopie, 1613
Redeker, F., Praktisches Lehrbuch der Kindertuberkulose, 553
Reduction, Oxidation-Reduction Potentials, 1042
Reed, A. C., Tropical Medicine in United States, 956
Reflex Action: A Study in the History of Physiological Psychology, 365
Reflex, Die Nase als Reflexorgan des autonomen Nervensystems, 749
Reflexes, Conditioned, 415—E
Refraction of Human Eye, 1858
Rejuvenation, Klinik und Therapie der Alterskrankheiten dargestellt für den Praktiker, 1044
Religion, The Devil: An Historical Critical and Medical Study, 1419
Respiration, A Hemato-Respiratory Study of 101 Consecutive Cases of Stammering, 1121
Rest, Action of Muscles Including Muscle Rest and Muscle Re-education, 1044
Rheumatism, Die Behandlung der rheumatischen Krankheiten, 1368
Rheumatism, Handbook of Vaccine Treatment of Chronic Rheumatic Diseases, 1991

Book Notices—Continued
Heiberg, K. A., Über Behandlung und Auffassung des Diabetes mellitus, 821
Hematology, Ricerche anatomo-cliniche su alcune emopatie, 1369
Henderson, D. K., Text-Book of Psychiatry for Students and Practitioners, 1771
Hendrickson, A., Medical Service: Its Relation to Collections: How to Collect, 617
Héraux, A., Les broncho-pneumonies chez l'enfant ou pneumonies en foyers, 888
Heredity in Man, 1450
Hertzler, A. E., Minor Surgery, 291
Hess, W. [illegible] tkreislaufes [illegible] hysiologie d [illegible] 617
Hickman, C. P., Laboratory Manual in College Physiology, 1612
Hill, Measurem [illegible] Ultra-Violet Ray [illegible]
Hinsie, L. E., [illegible], 1771
Hirsch, M., editor, Handbuch der inneren Sekretion, 1044; 1451
Histology, Essentials of, 291
Histology, Methods and Problems of Medical Education, 553
Histology, Text-Book of, 1936
Hoff, F., Unspezifische Therapie und natürliche Abwehrvorgänge, 1043
Hoff, H., Die zentrale Abstimmung der Sehsphäre, 1287
Holfedler, [illegible] der medizinischen [illegible]
Holt, L. E., [illegible] of Children, 225
Holthusen, H., editor, Ergebnisse der medizinischen Strahlenforschung, 616
Hospital, Handbücherei für das Gesamte Krankenhauswesen, 1449
Hou-Jensen, H. M., Die Verästelung der Arteria renalis in der Niere des Menschen, 1693
Hoyle, E., The Antiscurvy Vitamin in Apples, 1199
Hoyt, H. F., A Frontier Doctor, 1694
Huldschinsky, La valeur prophylactique des rayons ultra-violets, 364
Hull, T. G., Diseases Transmitted from Animals to Man, 1613
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Huntly, M. F., Principles of Bacteriology in Fifteen Lessons, 1695
Hygiene for Nurses, 957
Hygiene, Personal and Community Health, 1449
Hygiene, Textbook of, 1859
Hyman, Abraham, Diseases of the Urinary Tract in Children, 1286
Hyman, Albert S., Applied Electrocardiography, 291
Hypertension, 1771
Immunity, Principles of Bacteriology and, 1770
India, The Problem of Rinderpest in, 291
Industrial Accidents, La práctica médica en los accidentes del trabajo, 68
Infancy, Clinical Nutrition and Feeding in, 1122
Infant Nutrition, 1448
Infants, First Year of Life, 1771
Infants, Les broncho-pneumonies chez l'enfant ou pneumonies en foyers, 888
Infants, Les vomissements chez le nourrisson, 1693
Infants, Nutrition of Healthy and Sick, 225
Infectious Diseases, Naissance, vie et mort des maladies infectieuses, 1287
Influenza, Sertse I Grippoznoe Vospalenie Zubov I Mindalin, 1935
Infra-Red Rays, Le traitement des rhumatismes par les rayons infra-rouges, 364
Insanity, The Devil: An Historical Critical and Medical Study, 1449
Instruments, Guide to Surgical Instruments and Objects in Historical Series, 1370
Insurance, Medical Insurance Examination: Modern Methods and Rating of Lives, 435
Internal Medicine, Strümpell-Seyfarth Lehrbuch der speziellen Pathologie und Therapie der inneren Krankheiten, 553
International Conference on Goiter in Berne, Report of, 1450
International Congress of Actinology, transactions, 364
International Congress of World League for Sexual Reform, 1451
Intern's Handbook, 1369
Inventions and Discoveries of the Twentieth Century, 1527
Iodized Oil, La perméabilité et les obturatoins tubaires, 147
Iodized Oils as an Aid to the Diagnosis of Lesions of the Spinal Cord, 1199
Irvine-Jones, E. I. M., Handbook of Pediatric Procedures, 1991
Isaminblautherapie der bösartigen Geschwülste, 751
Jacobs, C. M.: Doctor, Tell Me! 1771
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Jennings, H. S., Biological Basis of Human Nature, 1992
Joints, Die Chirurgie, 1611
Joints, Physiologie pathologique, chirurgicale, 1121
Jones, R., Orthopedic Surgery, 148
Jordan, H. E., Text-Book of Histology, 1936
Joseph Purcell Research Memorial, Mouth Infections, 957
Joublot, J., L'anesthésie locale en oto-rhino- [illegible]
[illegible] ısse der medizini- [illegible] 616
Kayser-Petersen, J. E., Die Betrachtung und Betastung (Inspektion und Palpation) des Brustkorbs bei Lungenkranken, 1286
Keller, J. C., Modern Otology, 290
Keller, P., Choix d'une unité de mesure pour les rayons ultra-violets utilisés en médecine, 364
Keller, P., Diagnose und Therapie der Hauttuberkulose in der Praxis, 225
Kidneys, Die Verästelung der Arteria renalis in der Niere des Menschen, 1693
Kidneys, Radiographie néphro-cholécystique, 750
Kirschner, M., editor, Die Chirurgie, 617; 618; 1611
Klemperer, F., editor, Neue Deutsche Klinik, 1369
Klemperer, G., editor, Neue Deutsche Klinik, 1369
Kober, George Martin, Reminiscences of, 1936
Koblanck, A., Die Nase als Reflexorgan des autonomen Nervensystems, 749
Koby, F. E., Slit-Lamp Microscopy of Living Eye, 820
Kolle, W., editor, Handbuch der pathogenen Mikroorganismen, 224; 364; 365; 687; 819; 1449
Konjetzny, G. E., Die entzündliche Grundlage der typischen Geschwürsbildung im Magen und Duodenum, 435
Kraus, R., editor Handbuch der pathogenen Mikroorganismen, 224; 364; 365; 687; 819; 1449
Kugelmass, I. N., Clinical Nutrition and Feeding in Infancy and Childhood, 1122
Kumm, H. W., Geographical Distribution of Malaria Carrying Mosquitoes, 365
Kurtzahn, H., Kleine Chirurgie, 364
Kylin, E., Die Hypertoniekrankheiten, 1992
Laboratory Diagnosis, Text Book of Pathology Including, 617
Laboratory Manual in College Physiology, 1612
Landesmann, E., Die Therapie an den Wiener Kliniken, 69
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Larkin, A. J., Radium in General Practice, 618
Larynx, Cancer of the Larynx, 1859
Larynx, Manual of Diseases of Nose and Throat, 821
Larynx, Traitement du cancer endolaryngé, 290
Laws, A Survey of the Law Concerning Dead Human Bodies, 1611
Lazarus, P., Tratado general de radiología Médica, biología, patología y terapéutica, 618
League of Nations, Memoranda on the International Standardization of Therapeutic Sera and Bacterial Products, 149
League of Red Cross Societies, Prevention of Blindness, 959
Ledent, La valeur prophylactique des rayons ultra-violets, 364
Ledoux-Lebard, La radiothérapie pénétrante, 1121
Leprosy, Les aliénés et les correctionnaires à Saint-Lazare au XVII^e et au XVIII^e siècles, 1122
Leriche, R., Physiologie pathologique, chirurgicale; Inflammations, effects des traumatismes, Réparation des plaies, greffes, maladies des os, des articulations, des vaisseaux et des nerfs, 1121
Lesné, E., Les vomissements chez le nourrisson: Sténoses pyloriques et Duodénales, 1693
Leunbach, J. H., editor, Sexual Reform Congress, July 1-5, 1928, Copenhagen, 1451
Levine, M., A Compilation of Culture Media for the Cultivation of Micro-organisms, 1043
Lévy, J., Essais et dosages biologiques des substances médicamenteuses, 1043
Lewy, F. H., editor, Die Biologie der Person, 291
Lieferant, H., Doctor's Wives, 365
Lieferant, S., Doctor's Wives, 365
Life, Was ist das Leben? Forschungen und Gedanken, 434
Lipemia, La fisiopatologia clinica e sperimentale della lipemia, 436
Liver, Diagnosis and Treatment of Diseases of, 224
Liver, Über die akute und chronische gelbe Leberatrophie mit besonderer Berücksichtigung ihres epidemischen Auftretens in Schweden im Jahre 1927, 1612
Lockhart-Mummery, P., The After-Treatment of Operations, 292
Loëper, M., Thérapeutique médicale. I. Maladies du tube digestif, 1528
Londres, G. S., Das dextrocardias, 889
Lovett, R. W., Orthopedic Surgery, 148
Lucy, Le traitement des rhumatismes par les rayons infra-rouges, 364
Lumière, A., Le cancer: maladie des cicatrices, 618
Lungs, Die Betrachtung und Betastung (Inspektion und Palpation) des Brustkorbs bei Lungenkranken, 1286
Lungs, Études radiologiques sur le poumon et le médiastin, 1122
Lungs, Surgery of the Lung and Pleura, 148
Lyle, H. W., Manual of Physiology, 1859
Lyon, G., Les thérapeutiques nouvelles, 1200
Lythgoe, R. J., Adaptation of the Eye, 685
McCrae, T., (Osler's) Principles and Practice of Medicine, 1769
Mackenzie, C., Action of Muscles Including Muscle Rest and Muscle Re-education, 1044
McKenzie, D., Diathermy Medical and Surgical in Oto-Laryngology, 1857
MacLaren, J. P., Medical Insurance Examination, 435
MacNevin, M. G., Mouth Infections and Their Relation to Systemic Diseases, 957
McPheeters, H. A., Varicose Veins with Special Reference to the Injection Treatment, 291
Malaria, Fourth Factor in Etiology of, 1858
Malaria, Geographical Distribution of the Malaria Carrying Mosquitoes, 365
Malaria, Handbuch der pathogenen Mikroorganismen, 819
Malarial Nephritis, 149
Marchionini, A., Diagnose und Therapie der Hauttuberkulose in der Praxis, 225
Marriott, W. M., Infant Nutrition, 1448
Martius, H., editor, Ergebnisse der medizinischen Strahlenforschung, 616
Masochism, Sadism and Masochism, 1612
Massage, Action of Muscles Including Muscle Rest and Muscle Re-education, 1044
Massage, Practical, and Corrective Exercises with Applied Anatomy, 364
Materia Medica, A Text-Book of Materia Medica for Nurses, 1770
Materia Medica, Medicinal Drugs of India, 1612
Maternal Health, National Committee on Maternal Health, Seventy Birth Control Clinics, 1529
Maxwell, I., Clinical Bio-Chemistry, 1450
May, C. H., Manual of Diseases of the Eye, 1044
Mead, M., Growing up in New Guinea, 1370
Mediastinum, Études radiologiques sur le poumon et le médiastin, 1122
Medical History of Michigan, 819
Medical Research Council, Reports of Committee upon Physiology of Vision, 685; 750
Medical Service: Its relation to Collections: How to Collect, 617
Medicine, A Textbook of the Practice of, 1370
Medicine, Aphorismes de médecine clinique, 1285
Medicine, history, Beginnings: Egypt and Assyria, 365
Medicine, history, Edward Jenner and the Discovery of Smallpox Vaccination, 1528
Medicine, history, Hieronymi Fracastorii de Contagione et Contagiosis Morbis et eorum Curatione, Libri III., 1694
Medicine, history, Les aliénés et les correctionnaires à Saint-Lazare au XVII^e et au XVIII^e siècles, 1122
Medicine, History of Haitian Medicine, 1859
Medicine, History of Medicine in Nebraska, 887
Medicine, History of Orleans Parish Medical Society, 1878-1928, 1200
Medicine, History of the California Academy of Medicine, 1870 to 1930, 1692
Medicine, history, Viaggi ed escursioni scientifiche di Lazzaro Spallanzani, 1612
Medicine in British Isles, 1936
Medicine, Medizinische Anthropologie, 1371
Medicine, (Osler's) Principles and Practice of Medicine, 1769
Medicine, Neu Deutsche Klinik, 1369
Medicine, Some Applications of Organic Chemistry to, 435
Medicolegal, La Práctica médica en los accidentes del trabajo, 68
Medicolegal, The Doctor in Court, 436
Medicolegal, "The Expert," 436
Medicolegal, Survey of the Law concerning Dead Human Bodies, 1611
Medicolegal, Trauma, Disease, Compensation, 1769
Megaw, J. W. D., Tropical Medicine, 959
Ménières Disease, Clinical and Experimental Examinations in, 958
Meningitis, Iodized Oils as an Aid to the Diagnosis of Lesions of the Spinal Cord, 1199
Mental Aspects of Stammering, 1201
Mental Defectives, Sterilization for Human Betterment, 434
Mental Hygiene, Some Social Aspects of, 1859
Mérat, F. V., Aphorismes de médecine clinique, 1285
Metabolism, Handbuch der inneren Sekretion, 1044
Meunier, L., Traitement médical des affections stomacales, 1528
Meyer, H., editor, Sonderbände zur Strahlentherapie, 149; 820; 1694
Meyer-Ruegg, P., Die Knochen- und Gelenktuberkulose, 1992
Michaelis, L., Oxidation-Reduction Potentials, 1042
Michelet, L., La vie d'Ambroise Paré (Chirurgien du Roy, écrivain), 1043
Michigan, Medical History of, 819
Michon, P., Les groupes sanguins, 1769
Microscopy, Slit-Lamp Microscopy of the Living Eye, 820
Midwives, Textbook for, 1200
Military Preventive Medicine, 1612
Milk, The Most Nearly Perfect Food: The Story of, 225

Book [illegible]
Minist[illegible] Study of Naso-pl[illegible] 1770
Mirizzi, P. L., Clinica quirurgica, 751
Mitchell, C. A., editor, Allen's Commercial Organic Analysis, 1287
Möller, H. U., Untersuchungen über das Dunkelsehen mit Tscherning's photometrischen Gläsern, 1042
Mohan, B. S., Medicinal Drugs of India, 1612
Moh[illegible] organischen Er-
Mon[illegible] 'altitude: Leurs [illegible] Vaquez, 1200
Mon[illegible] Examination of
Mor[illegible] Treatment, 1694
Mos[illegible] and Treatment of Variations in Blood Pressure and Nephritis, 224
Mosquitoes, Geographical Distribution of the Malaria Carrying, 365
Mouth Infections and Their Relation to Systemic Disease, 957
Mouth, Physiology of Oral Hygiene, 819
Much, H., Was ist das Leben? Forschungen und Gedanken, 434
Mueller, F., Manual of Physical and Clinical Diagnosis, 888
Mueller, O. C., "The Expert," 436
Muscles, Action of, Including Muscle Rest and Muscle Re-education, 1043
Muscles, Physiologie pathologique, chirurgicale; inflammations, effets des traumatismes, 1121
Muse, M. B., Text-Book of Psychology for Nurses, 686
Myxedema, Handbuch der Geisteskrankheiten, 436
Napoleon's physician, Corvisart, Aphorismes de médecine clinique, 1285
Nasal Sinusitis, Chronic, 1857
Nash, J. B., editor, Symposium on Physical Education and Health, 1199
Nasopharynx, Report on Study of Nasopharyngeal Bacterial Flora, 1770
National Committee on Maternal Health, Seventy Birth Control Clinics, 1529
Nebraska, History of Medicine in, 887
Necropsy, Survey of Law Concerning Dead Human Bodies, 1611
Nephritis, Diagnosis and Treatment of Variations in Blood Pressure and, 224
Nephritis, Malarial, 149
Nerves surgery, Die Chirurgie, 1611
Nervous Indigestion, 1935
Nervous System, Clinical Examination of, 751
Nervous System, Die Chirurgie, 617
Nervous System, Die Nase als Reflexorgan des autonomen Nervensystems, 749
Nervous Syster[illegible] Blutkreislaufes [illegible] Physiologie des [illegible] 617
Nervous System, Handbuch der normalen und pathologischen Physiologie mit Berücksichtigung der experimentellen Pharmakologie, 1695
Nervous System, Sonderbände zur Strahlentherapie, 1694
Nervous System, Untersuchungen über das periphere Nervensystem, 1991
Neumann, W., Die Klinik der Tuberkulose Erwachsener, 819
Neurosis, Le neurosi del cuore e dei vasi sanguigni e loro cura, 1286
Neurosis, Psychoanalysis of Total Personality, 1935
Neurosyphilis, L'hérédo-syphilis mentale, 957
New and Nonofficial Remedies, 1930, 68
New Guinea, Growing up in New Guinea, 1370
Nichols, I. G., Prosthetic Dentistry, 1450
Nicolle, C., Naissance vie et mort des maladies infectieuses, 1287
von Niessl-Mayendorf, Vom Lokalisationsproblem der artikulierten Sprache, 1769
Nissen, H., Practical Massage and Corrective Exercises with Applied Anatomy, 364
Nissen, R., Die Knochen- und Gelenktuberkulose, 1992
Nobel, E., The Nutrition of Healthy and Sick Infants and Children, 225
Nordmann, O., editor, Die Chirurgie, 617; 618
Norris, C. C., Uterine Tumors, 958
Nose, Die Behandlung der *Ohren-, Nasen- und* Halskrankheiten in der allgemeinpraxis, 956
Nose, Die Nase als *Reflexorgan des autonomen* Nervensystems, 749
Nose, Diseases of, 687
Nose, Manual of Diseases of, 821
Nurses, Applied Bacteriology for, 1451
Nurses, Fundamentals of Dietetics, 1769
Nurses, Gynecology for, 617
Nurses, Hygiene for, 957
Nurses, Outline in Obstetrics for, 1693
Nurses, Practical Midwifery for, 1859
Nurses, Principles of Bacteriology in Fifteen lessons, 1695
Nurses, Text-Book of Materia Medica for, 1770
Nurses, Text-Book of Psychology for, 686
Nutrition, Care and Feeding of Children, 225
Nutrition, Clinical Nutrition and Feeding in Infancy and Childhood, 1122
Nutrition, Dietary of Health and Disease, 1370
Nutrition, Infant Nutrition, 1448
Nutrition of Healthy and Sick Infants and Children, 225
Obesity, Grow Thin on Good Food, 1528
Obstetrics, Outline in Obstetrics for Nurses, 1693
Obstetrics, Practical Midwifery for Nurses, 1859
Obstetrics, Textbook for Midwives, 1200
O'Conor, J., Reflections and Operations, 225
Odin, M., Iodized Oils as an Aid to Diagnosis of Lesions of Spinal Cord, 1199
Old Age, Care of Aged Persons in the United States, 1369
Old Age, Klinik und Therapie der Alterskrank*heiten dargestellt für den Praktiker, 1044*
Oller, A., La práctica médica en los accidentes del trabajo, 68
Olympic Games, Ergebnisse der sportärzlitchen Untersuchungen bei den IX. Olympischen Spielen in Amsterdam, 1928, 1450
Ombrédanne, M., Traitement du cancer endolaryngé: L'hémilaryngectomie (technique A. Hautant), 290
Ophthalmology, Kurzes Handbuch der Ophthalmologie, 888
Ordway, T., Diagnosis and Treatment of Diseases of the Blood, 224
Orleans Parish Medical Society, History of, 1200
Orthopedic Surgery, 148
Ory, M., Le traitement de la péritonite tuberculeuse par la lumière, 364
Osborne, W. A., Elementary Practical Biochemistry, 1449
Osler's Principles and Practice of Medicine, 1769
Oto-Laryngology, Diathermy Medical and Surgical in, 1857
Otology, Modern Otology, 290
Otorhinolaryngology, Die Behandlung der Ohren-, Nasen- und Halskrankheiten in der Allgemeinpraxis, 956
Otorhinolaryngology, L'anesthésie locale en oto-*rhino-laryngologie, 365*
Ovaries, Die entzündlichen Erkrankungen der weiblichen Geschlechtsorgane, 887
Oxford Monographs on Diagnosis and Treatment, 224
Oxidation-Reduction Potentials, 1042
Ozone, Practical Index to Electro and Photo Therapy Including an Index of Diseases with Descriptive Techniques, 889
Pack, G. T., Burns: Types, Pathology and Management, 1286
Paradentitis, Sertse I Grippoznoe Vospalenie Zubov I Mindalin, 1935
Parasite, The Candirú, 1771
Parasitology, Introduction to Human Parasitology, 364
Parasitology, Text Book of Pathology Including, 617
Paré, Ambroise, La vie d'Ambroise Paré (Chirurgien du Roy, écrivain), 1043
Parsonnet, A. E., Applied Electrocardiography, 291
Parsons, R. P., History of Haitian Medicine, 1859
Pascal, E., Un Révélatéur du subconscient: Le Haschich, 821
Pathology, Principles of Clinical Pathology in Practice, 616
Pathology, Strümpell-Seyfarth Lehrbuch der speziellen Pathologie und Therapie der inneren Krankheiten, 553
Pathology, Text Book of, 617
Paul, G. P., A Text-Book of Materia Medica for Nurses, 1770
Pavlov, I. P., Conditioned Reflexes, 415—E
Pediatric Procedures, Handbook of, 1991
Pelvis, Die entzündlichen Erkrankungen der weiblichen Geschlechtsorgane, 887
Peptic Ulcer, Die entzündliche Grundlage der typischen Geschwürsbildung im Magen und Duodenum, 435
Percussion, Die Betrachtung und Betastung (Inspektion und Palpation) des Brustkorbs bei Lungenkranken, 1286
Personality, Psychoanalysis of Total Personality, 1935
Pharmacology, Éléments de pharmacodynamie générale, 750
Pharynx, Manual of Diseases of Nose and Throat, 821
Phillips, John, The Diagnosis and Treatment of Diseases of the Liver and Biliary Tract, 224
Phlébites thromboses et embolies post-opératoires, 687
Photographisches Praktikum für Mediziner und Naturwissenschaftler, 148
Photometry, Untersuchungen über das Dunkelsehen mit Tscherning's photometrischen Gläsern, 1042
Physical Chemistry, Lecons de physico-chime, 686
Physical Education, Symposium on, 1199
Physical Examination, Medical Insurance Examination, 435
Physical Signs, Manual of Normal, 1529
Physical Therapy, Practical Index to Electro and Photo Therapy Including an Index of Diseases with Descriptive Techniques, 889
Physicians, A Frontier Doctor, 1694
Physicians, Doctors' Wives, 365
Physicians, Medical Service: Its Relation to Collections: How to Collect, 617
Physician, The Doctor in Court, 436
Physiological Chemistry, Introduction to, 1770
Physiological Principles in Treatment, 1287
Physiology, Applied, 1771
Physiology, Laboratory Manual in College Physiology, 1612
Physiology, Manual of, 1859
Physiology, Photographisches Praktikum für Mediziner und Naturwissenschaftler, 148
Pighini, G., Viaggi ed escursioni scientifiche di Lazzaro Spallanzani, 1612
Piot, Étienne, La radiothérapie pénétrante, 1121
Pirquet, C., editor, Handbuch der Kindertuberkulose, 1858
Pirquet, C., The Nutrition of Healthy and Sick Infants and Children for Physicians and Students, 225
Pistia (Water Lettuce), Fourth Factor in Etiology of Malaria, 1858
Pitch, Study of Coal-Tar Pitch, 553
Pitkin, W B., The Art of Rapid Reading, 1199
Pituitary Body, Experimentelle Bidrag til Sporgsmaalet om Hypophysens Livsvigtighed, 1857
Pituitary Body, La fisio-patologie del sonno, 1200
Plarr's Lives of Fellows of Royal College of Surgeons of England, 1527
Pleura, Surgery of the Lung and, 148
Pneumonia, Les broncho-pneumonies chez l'enfant ou pneumonies en foyers, 888
Policard, A., Physiologie pathologique, chirurgicale; inflammations, effets des traumatismes, Réparation des plaies, greffes, maladies des os, des articulations, des vaisseaux et des nerfs, 1121
Popenoe, P., Sterilization for Human Betterment, 434
Potter, H. W. Psychiatric Study of Problem Children, 553
Power, D'A., Medicine in British Isles, 1936
Power, D'A., Plarr's Lives of Fellows of Royal College of Surgeons of England, 1527
Prausnitz, C., Memoranda on the International Standardization of Therapeutic Sera and *Bacterial Products, 149*
Precipitins, Handbuch der pathogenen Mikroorganismen, 687
Preventive Medicine, Military, 1612
Price, F. W., editor, Textbook of the Practice of Medicine,
Problem Children, Psychiatric Study of, 553
Proctoscope, Die Prokto-Sigmoskopie und ihre Bedeutung für die Diagnostik und Therapie der Krankheiten des Rektum und des Sigmoideum, 1613
Prosthetic Dentistry: An Encyclopedia of Full and Partial Denture Prosthesis, 1450
Psychiatric Study of Problem Children, 553
Psychiatry, Handbuch der Geisteskrankheiten, 1613
Psychiatry, Text-Book of, 1771
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Psychogenesis, Anatomische Organkrankheiten aus seelischer Ursache, 617
Psychology, Child Psychology, The First Year of Life, 1771
Psychology, Nouveau traité de psychologie, 1042
Psychology, Praxis und Theorie der Individualpsychologie, 1369
Psychology, Reflex Action: A Study in the History of Physiological Psychology, 365
Psychology, Sadism and Masochism: *The Psychology* of Hatred and Cruelty, 1612
Psychology, Text-Book of Psychology for Nurses, 686
Psychotherapy, Psychotherapie bei organischen Erkrankungen, 1201
Purcell, Joseph Purcell Research Memorial, Mouth Infections and Their Relation to Systemic Diseases, 957
Pylorus, Les vomissements chez le nourrisson, 1693
Racial Welfare, Human Biology and, 147
Radiologische Praktika, 958; 1859
Radiology, Tratado general de radiología médica, biología patología y terapéutica, 618
Radium, Ergebnisse der medizinischen Strahlenforschung, 616
Radium in General Practice, 618
Radium, Sonderbände zur Strahlentherapie, 149
Rea, R. L., Affections of Eye in General Practice, 820
Read, J. M., History of the California Academy of Medicine, 1870 to 1930, 1692
Reading, The Art of Rapid Reading, 1199
Rectum, Die Prokto-Sigmoskopie, 1613
Redeker, F., Praktisches Lehrbuch der Kindertuberkulose, 553
Reduction, Oxidation-Reduction Potentials, 1042
Reed, A. C., Tropical Medicine in United States, 956
Reflex Action: A Study in the History of Physiological Psychology, 365
Reflex, Die Nase als Reflexorgan des autonomen Nervensystems, 749
Reflexes, Conditioned, 415—E
Refraction of Human Eye, 1858
Rejuvenation, Klinik und Therapie der Alterskrankheiten dargestellt für den Praktiker, 1044
Religion, The Devil: An Historical Critical and Medical Study, 1449
Respiration, A Hemato-Respiratory Study of 101 Consecutive Cases of Stammering, 1121
Rest, Action of Muscles Including Muscle Rest and Muscle Re-education, 1044
Rheumatism, Die Behandlung der rheumatischen Krankheiten, 1368
Rheumatism, Handbook of Vaccine Treatment of Chronic Rheumatic Diseases, 1991

Book Notices—Continued
Rheumatism, Le traitement des rhumatismes par les rayons infra-rouges, 364
Riccitelli, L., Ricerche anatomo-cliniche su alcune emopatie, 1369
Rice, F. W., Outline in Obstetrics for Nurses, 1693
Riese, H., editor, Sexual Reform Congress, July 1-5, 1928, Copenhagen, 1451
Rinderpest, Problem of, in India, 291
Riser, Le liquide céphalo-rachidien, 69
Robert Dawson Evans Memorial, Collected Publications from, 887
Robinson, C. H., Seventy Birth Control Clinics, 1529
Rockefeller Foundation, Methods and Problems of Medical Education (Sixteenth Series), 553
Roddis, L. H., Edward Jenner and the Discovery of Smallpox Vaccination, 1528
Roentgen Rays, Chest Roentgenologically Considered, 749
Roentgen Rays, Ergebnisse der medizinischen Strahlenforschung, 616
Roentgen Rays, Radiographie néphro-cholécystique, 750
Roentgen Rays, Radiologie clinique du tube digestif, 821
Roentgen Rays, Radiologische Praktika, 958; 1859
Roentgen Rays, Sonderbände zur Strahlentherapie, 149; 820; 1694
Roentgen Therapy, Dosage Tables for, 1992
Roentgen Therapy, La radiothérapie pénétrante, 1121
Roger, G. H., Nouveau traité de médecine, 686
Rogers, L., Tropical Medicine, 959
Rolleston, H. D., The Right Honourable Sir Thomas Clifford Allbutt, 1450
Rollier, A., Le traitement de la péritonite tuberculeuse par la lumière, 364
von Romberg, E., Ueber die Dekompensation der erworbenen Herzklappenfehler und ihre Behandlung, 148
Roosen, R., Die Isaminblautherapie der bösartigen Geschwülste, 751
Rost, G. A., Diagnose und Therapie der Hauttuberkulose in der Praxis, 225
Rott, F., editor, Ergebnisse der Sozialen Hygiene und Gesundheitsfürsorge, 1935
Roux, J. C., Radiologie clinique du tube digestif, 821
Roy, P. C., The Fourth Factor in Etiology of Malaria, 1858
Royal College of Surgeons, Plarr's Lives of Fellows of, 1527
Runström, G., Iodized Oils as an Aid to Diagnosis of Lesions of Spinal Cord, 1199
Russian Endocrinologic Society, Protokoly Zasedaniy za 1928-1929. Vypusk. 5, 820
Sadism and Masochism; The Psychology of Hatred and Cruelty, 1612
Saidman, J., Choix d'une unité de mesure pour les rayons ultra-violets utilisés en médecine, 364
Salmon, A., La fisio-patologia del sonno, 1200
Sansum, W. D., The Normal Diet, 1285
Sante, L. R., Chest Roentgenologically Considered, 749
Savill, T. D., System of Clinical Medicine, 1770
Schafer, E. S., The Essentials of Histology Descriptive and Practical, 291
Schall, H., Nahrungsmittel-Tabelle zur Aufstellung und Berechnung von Diätverordungen für Krankenhaus, Sanatorium und Praxis, 1429
Schieck, F., editor, Kurzes Handbuch der Ophthalmologie, 888
Schilling, V., Blood Picture and Its Clinical Significance (Including Tropical Diseases), 148
Schinz, H. R., editor, Ergebnisse der medizinischen Strahlenforschung, 616
Schizophrenia, Treatment of, 1771
Schlesinger, H., Klinik und Therapie der Alterskrankheiten dargestellt für den Praktiker, 1044
Schmidt, C. F., Ephedrine and Related Substances, 1528
Schoenlein, H. W., A Compilation of Culture Media for the Cultivation of Microorganisms, 1043
Schwab, S. I., The Adolescent: His Conflicts and Escapes, 224
Schwartz, P., Die Arten der Schlaganfälle des Gehirns und ihre Entstehung, 1371
Schwarz, O., Medizinische Anthropologie, 1371
Science, Discoveries and Invention of the Twentieth Century, 1527
Science, Two Thousand Years of, 1449
Scott, G. L., The Morphine Habit and Its Painless Treatment, 1694
Seifert, O., Manual of Physical and Clinical Diagnosis, 888
Sensation and the Sensory Pathway, 1201
Serums, therapeutic, Memoranda on the International Standardization of Therapeutic Sera and Bacterial Products, 149
Sex, Generations of Adam, 1936
Sex, World League for Sexual Reform Congress, July 1-5, 1928, Copenhagen, 1451
Seyfarth, C., Strümpell-Seyfarth Lehrbuch der speziellen Pathologie und Therapie der inneren Krankheiten, 553
Shaw, J. J. M., Cancer Process, 1528
Shibata, S., Study of Coal-Tar Pitch, Its Epithelioma-Producing Factor, 553
Sigmoid, Die Prokto-Sigmoskopie, 1613
Simon, G., Praktisches Lehrbuch der Kindertuberkulose, 553
Skin, Diagnose und Therapie der Hauttuberkulose in der Praxis, 225
Skin, Principles and Practice of Dermatology, 224
Sleep, Insomnia: How to Combat It, 1695
Sleep, La fisio-patologia del sonno, 1200
Slit-Lamp Microscopy of Living Eye, 820
Smallpox, Handbuch der pathogenen Mikroorganismen, 364
Smallpox Vaccination, Edward Jenner and the Discovery of, 1528
Smith, B. F., Diabetes: Directions for Treatment by Insulin and Diet, 687
Smyth, F. S., Handbook of Pediatric Procedures, 1991
Snake-Bite, Handbook of, 149
Snyder, H., Bread, 364
Solomons, B., Practical Midwifery for Nurses, 1859
Spallanzani, Lazzaro, Viaggi ed escursioni scientifiche di Lazzaro Spallanzani, 1612
Speech, A Hemato-Respiratory Study of 101 Consecutive Cases of Stammering, 1121
Speech, Mental Aspects of Stammering, 1201
Speech, Vom Lokalisationsproblem der artikulierten Sprache, 1769
Spinal Cord, Iodized Oils as an Aid to the Diagnosis of Lesions of, 1199
Spirochetes, Handbuch der pathogenen Mikroorganismen, 365; 819
Spleen, La rate organe réservoir, 1045
Stammering, A Hemato-Respiratory Study of 101 Consecutive Cases of, 1121
Stammering, Mental Aspects of, 1201
Stekel, W., Sadism and Masochism; The Psychology of Hatred and Cruelty, 1612
Sterilization for Human Betterment, 431
Sthenics: The Chord Invisible, 618
Stomach, Die entzündliche Grundlage der typischen Geschwürsbildung im Magen und Duodenum, 435
Stomach, Traitement médical des affections stomacales, 1528
Stone, K., Principles of Clinical Pathology in Practice, 616
Stopford, J. S. B., Sensation and the Sensory Pathway, 1201
Strauss, H., Die Prokto-Sigmoskopie, 1613
Strauss, S., Choix d'une unité de mesure pour les rayons ultra-violets utilisés en médecine, 364
Stroganoff, W., Improved Prophylactic Method in Treatment of Eclampsia, 750
Strohl, A., Lecons de physico-chimie, 686
Strümpell-Seyfarth Lehrbuch der speziellen Pathologie und Therapie der inneren Krankheiten, 553
Subconscious, Une révélateur du subconscient: Le Haschich, 821
Sunlight, Measurement of Biologically Active Ultra Violet Rays of, 888
Surgeon, The Story of a Surgeon, 1613
Surgeons, Plarr's Lives of Fellows of Royal College of Surgeons of England, 1527
Surgery, After-Treatment of Operations, 292
Surgery, Chirurgie des Kindesalters, 290
Surgery. Clinica quirurgica, 751
Surgery, Die Chirurgie, 617; 618; 1611
Surgery, Dramatic in, 617
Surgery, Guide to Surgical Instruments and Objects in the Historical Series with Their History and Development, 1370
Surgery, Kleine Chirurgie, 364
Surgery, Minor, 291
Surgery of the Lung and Pleura, 148
Surgery, Orthopedic, 148
Surgery, Practical Local Anesthesia and Its Surgical Technic, 68
Surgery, Reflections and Operations, 225
Surgery, Synopsis of, 1043
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Syphilis, L'hérédo-syphilis, mentale, 957
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Tansley, K., Adaptation of Eye: Its Relation to Critical Frequency of Flicker, 685
Tar, Study of Coal-Tar Pitch, Its Epithelioma-Producing Factor, 553
Teeth Caries, Physiology of Oral Hygiene, 819
Teissier, P. J., Nouveau traité de médecine, 686
Tendons, Physiologie pathologique, chirurgicale: inflammations, effets des traumatismes, 1121
Terry, R. J., Introduction to the Study of Human Anatomy, 1526
Therapeutics, Die Therapie an den Wiener Kliniken, 69
Therapeutics, Die Therapie der Wiener Spezialärzte, 1937
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Therapeutics, Formulaire de thérapeutique clinique, 265
Therapeutics, Handbook of Therapeutics, 1858
Therapeutics, Les thérapeutiques nouvelles, 1200
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Therapeutics, Oxford Monographs on Diagnosis and Treatment, 224
Therapeutics, Physiological Principles in Treatment, 1287
Therapeutics, Strümpell-Seyfarth Lehrbuch der speziellen Pathologie und Therapie der inneren Krankheiten, 553
Therapeutics, Text-Book of Materia Medica for Nurses Including, 1770
Therapeutics, Thérapeutique médicale, 1528
Therapeutics, Treatment in General Practice, 1285
Therapeutics, Umstimmung als Behandlungsweg, 1448
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Thomas, G. I., The Dietary of Health and Disease, 1370
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Thorington, J., Refraction of the Human Eye, 1858
Throat, Die Behandlung der Ohren-, Nasen- und Halskrankheiten in der Allgemeinpradis, 956
Throat, Diseases of, Medical and Surgical, 687
Throat, Manual of Diseases of, 821
Thromboses, Phlébites thromboses et embolies post-opératoires, 687
Timmer, H., Die Behandlung des Hallux valgus, 1044
Tobey, J. A., The Most Nearly Perfect Food: The Story of Milk, 225
Todd, T. W., Behavior Patterns of Alimentary Tract, 1042
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Trachoma, Handbuch der pathogenen Mikroorganismen, 364
Tropical Diseases, Blood Picture and Its Clinical Significance Including, 148
Tropical Medicine, 959
Tropical Medicine in United States, 956
Trumper, M., A Hemato-Respiratory Study of 101 Consecutive Cases of Stammering, 1121
Tscherning's photometric glasses, Untersuchungen über Das Dunkelsehen mit Tscherning's Photometrischen Gläsern, 1042
Tuberculosis, Diagnose und Therapie der Hauttuberkulose in der Praxis, 225
Tuberculosis, Die Klinik der Tuberkulose Erwachsener, 819
Tuberculosis, Die Knochen- und Gelenktuberkulose, 1992
Tuberculosis, Die Wechselbeziehungen zwischen der Tuberkoloseerkrankung und den Generationsvorgängen im weiblichen Organismus, 959
Tuberculosis, Handbuch der Kindertuberkulose, 1858
Tuberculosis, Le traitement de la péritonite tuberculeuse par la lumière, 364
Tuberculosis, Praktisches Lehrbuch der Kindertuberkulose, 553
Tuberculosis, Vaccination préventive et curative du cobaye et du lapin contre la tuberculose humaine, 618
Tumors, Handbuch der pathogenen Mikroorganismen, 1449
Turner, C. E., Personal and Community Health, 1449
Tyler, A. F., editor, History of Medicine in Nebraska, 887
Uhlenhuth, P., editor, Handbuch der pathogenen Mikroorganismen, 224; 364; 365; 687; 819; 1449
Ultra-Violet Radiations and Their Uses, 1370
Ultraviolet Rays, Choix d'une unité de mesure pour les rayons ultra-violets utilisés en médecine, 364
Ultraviolet Rays, Ergebnisse der medizinischen Strahlenforschung, 616
Ultra-Violet Rays in Treatment and Cure of Disease, 618
Ultraviolet Rays, La valeur prophylactique des rayons ultra-violets, 364
Ultraviolet Rays, Le traitement de la péritonite tuberculeuse par la lumière, 364
Ultraviolet Rays, Measurement of Biologically Active Ultra Violet Rays of Sunlight, 888
United States Bureau of Labor Statistics, Care of Aged Persons in United States, 1369
Urinary Tract, Diseases of, in Children, 1286
Useful Drugs, 1368
Uterine Tumors, 958
Uterus, Die Wechselbeziehungen zwischen der Tuberkoloseerkrankung und den Generationsvorgängen im weiblichen Organismus, 959
Van Breemen, J., Le traitement des rhumatismes pars les rayons infra-rouges, 364

Book Notices—Continued
Vaquez Disease, Les érythrémies de l'altitude: Leurs rapports avec la maladie de Vaquez, 1200
Varicose Veins with Special Reference to the Injection Treatment, 291
Vaughan, H. S., Mouth Infections and Their Relation to Systemic Diseases, 957
Veeder, B. S., Adolescent: His Conflicts and Escapes, 224
Venereal Disease: Its Prevention, Symptoms and Treatment, 224
Vertigo, aural, Clinical and Experimental Examinations in Patients Suffering from Mb. Menièri, 958
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Vié, Jacques, Les aliénés et les correctionnaires à Saint-Lazare au XVII^e et au XVIII^e siècles, 1122
Vienna Clinics, Die Therapie an den Wiener Kliniken, 69
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Vinchon, J., The Devil: An Historical Critical and Medical Study, 1449
Vision, Die zentrale Abstimmung der Sehsphäre, 1287
Vision, Reports of Committee of Medical Research Council upon Physiology of, 685; 750
Vitamin C, Antiscurvy Vitamin in Apples, 1199
Voltz, F., *Dosage Tables for Röntgen Therapy*, 1992
Vomiting, Les vomissements chez le nourrisson, 1693
Waddington, J. E. G., Practical Index to Electro and Photo Therapy, 889
Wagner, R., The Nutrition of Healthy and Sick Infants and Children, 225
Wallace, J. S., Physiology of Oral Hygiene, 819
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White, W. C., Cancer of Breast, 958
Widal, F., Nouveau traité de médecine, 686
Wieman, H. L., Introduction to Vertebrate Embryology, 1200
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Williams, E. H., The Doctor in Court, 436
Williams, F. E., Some Social Aspects of Mental Hygiene, 1859
Wilson, G. S., Principles of Bacteriology and Immunity, 1770
Witnesses, The Doctor in Court, 436
Witnesses, "The Expert," 436
Wolbarst, A. L.: Generations of Adam, 1936
Wolbarst, A. L., Gonococcal Infection in Male, 686
Wood, B. M., Fundamentals of Dietetics, 1769
Woringer, *La valeur prophylactique des rayons* ultra-violets, 364
Workmen's Compensation, Trauma, Disease, Compensation, 1769
Wright, S., Applied Physiology, 1771
Wright, W. C., Hieronymi Fracastorii de Contagione et Contagiosis Morbis et eorum Curatione, Libri III, 1694
Young, W. A., Elementary Practical Biochemistry, 1449
Zand, N., Les plexus choroides: Anatomie, physiologie, pathologie, 958
Zander, P., Das Für und Wider der chirurgischen Behandlung des Gallenleidens auf Grund der Erfahrungen an 800 Gallenoperationen, 365
Zilva, S. S., The Antiscurvy Vitamin in Apples, 1199
Zimmer, A., editor, Die Behandlung der rheumatischen Krankheiten, 1368
Zoogenesis, The New Evolution: Zoogenesis, 1771
Zunz, E., élémente de pharmacodynamie générale, 750

C

CACAO: See Chocolate
CACHEXIA, alcoholic, [Takasu] 700—ab
  edema, [Bruckman] 449—ab
  hypophyseal, [Herman] 1701—ab; [Reiche] 1876—ab
CACODYLATE, sodium, in malaria, [Caciapuoti] 305—ab
  sodium, in scurvy, [Gichner & Sherry] ★9
CADAVERS: See also Necropsies
  demonstration of lymphatic system in, 747
  hydrocyanic acid in viscera at delayed necropsies, 544
  Survey of Laws Concerning Dead Bodies, 1611
CAFFEINE, effect on cardiac irregularities, [Brow & others] ★716
  in insulin hypoglycemic, [Popper] 1461—ab
  Phenyo-Caffein, 952—BI
CAFFEINE—Continued
  sodiobenzoate for coronary thrombosis, [Brown] 1049—ab
CALCANEUM, gonorrheal spurs a misnomer, [von Lackum & Palomeque] ★472
  tuberculosis in children, [Pouzet] 1214—ab
CALCIFICATION: See also Bone formation; Calculi; Myositis
  appearance of ossification centers after using viosterol, [Hess & others] ★322
  decalcifying effect of cereals, [Weston] ★834
  experimental ossification, [Mazzini] 1137—ab
  nodules in substance of lung, [Opie] ★1152
  of tuberculous lesions by viosterol, [Spies] 157—ab; [Levaditi] 695—ab
  ossified, traumatic epithelial cyst on tongue, [Pollack] 903—ab
"CALCINOSE" factor in Viosterol, 1593—E
CALCIUM, absorption in rickets, [Peola] 1541—ab
  acetate in renal rickets, 116—E
  balances, is meat diet a menace? [Moulton] *1762—C*
  balances, negative ultraviolet radiations a panacea for, [Steenbock] 160—ab
  behavior in fractures, [Bellelli] 1215—ab
  carbonate prolonged use, effects, 1608
  chloride cause dermatitis? 1198
  chloride for postoperative retention of urine, [Fiorini] 761—ab
  chloride subcutaneously, to prevent pulmonary embolism, [Martin] 831—ab
  compared with dextrose for decreasing clotting time, [Ravdin] 369—ab
  deficient foods cause osteitis fibrosa, 1601
  deposit in connective tissue, [Cohn] 1875—ab
  deposit in paraurethral gland, 1933
  diuretin rhodan for essential hypertension, [Ayman] ★247
  dust and lung disease, [Russell] ★1714
  effect of long continued parathyroid administration, [Day] 1456—ab
  effect on excretion of mercury, (correction) 56
  hypochlorite, for disinfecting drinking water in epidemic, 1600
  in beef liver, calf liver, hog liver and oysters, [Weston] ★836
  in Blood: See Blood
  in commercial brands of milk, [Weston] ★835
  in diet, [Stone] ★713
  intravenously, venoclysis, [Hendon] ★1175
  lactate or chloride in nephritic edema, 1447
  metabolism, disordered, may cause uterine hemorrhage, [Sharman] 453—ab
  metabolism, interrelationship between spleen and parathyroid, 937—E
  metabolism vs. bone diseases, 1601; 1603
  mi[illegible] in childhood, 597—E
  ne[illegible] menace? 866—E; [illegible]
  parathyroid—viosterol treatment, 1038
  partition in pregnancy, [Cantarow] 1866—ab
  praise of, 1977—E
  retention in tissues, hypervitaminosis with vitamin D, 1023—E
  salts, large doses orally for surgical tuberculosis, [Zalewski] 760—ab
  salts *plus low protein diet, for essential* hypertension, [Ayman] ★247
  staining, [Cameron] 1946—ab
  sulphur inhalations for pulmonary tuberculosis, [Siegel] 166—ab
  "Thin Child and Calcium," in *Good Housekeeping*, 1038
  treatment during childhood, [Ochsenius] 379—ab
  treatment in allergy, [Cohen] 294—ab; [Beckman] ★1584
  treatment of tuberculosis, [Fraser] 80—ab; [Hein] 166—ab; [Stein] 241—ab; 424; [Regiani] 1783—ab
  treatment, status, 146
CALCULI: See also Bile Ducts; Biliary Tract; Bladder; Gallbladder; *Kidney; Ureter*
  formation from prolonged use of alkaline powders? 1608
  rôle of colloids in prevention of, [Newcomb] 1053—ab
CALENDAR, school, proposed changes in Italy, 947
CALF immunity to undulant fever, 799—E
  liver, dried sample, mineral content, [Weston] ★836
  milt diet in tuberculous arthritis, [Fliegel] 1778—ab
CALLUS formation delayed in lead poisoning, 884
  formation in poliomyelitis, [Tumpeer & McNealy] ★19
  formation vs. x-rays, *[Fukase] 241—ab*
CALOMEL: See Mercury, mercurous chloride
CALORIES, low calory—high carbohydrate diet in diabetes, [Rabinowitch] 1615—ab
  search for health, 1429—E
CAMOMILE, prescription of Copernicus, 1111
CAMP, JULIAN E., honored, 207
CAMPBELL, W. G., ★728; 730—E
CAMPHO-QUININE, 882—BI
CAMPHOR, action in cerebral abscesses, [Kirch] 378—ab
CAMPHOR—Continued
  antiseptic to prevent spores in acetic acid solution for counting leukocytes, 817
  poisoning from camphorated oil in children, [Aikman] ★1662
  treatment of typhoid, [Guerrero] 1942—ab
CAMPS, for children provided by Association de campements, 1111
  inspected by state health department, Connecticut, 539
  meningitis outbreak at, Lake County, 539
  summer, for diabetic children, [Wendt] 232—ab
CANADA, medical colleges in, ★500; ★532; 535—E
  physicians for rural districts, 1435
CANADIAN MEDICAL ASSOCIATION, 209; 943
CANCER: See also Adenocarcinoma; Epithelioma; Tumors, malignant; under names of organs and regions as Bladder; Bone; Breast; Stomach; Tongue; Uterus; etc.
  adenoid cystic, [Spies] *1293*—ab
  American Journal of Cancer, 872
  basal cell, [Owen] 1376—ab
  blood cholesterol vs. single irradiation with quartz lamp, [Malczyński] 459—ab
  blood in, [Greeff] 965—ab
  blood lactic acid in, [Jervell] 382—ab
  blood sedimentation reaction in, [Adams-Ray] 702—ab
  British Empire cancer campaign, 423
  campaign, Belgium, 355
  campaign, France, 674
  campaign, Illinois, 1677
  campaign, organization, Germany, 610
  campaign, Ukraine, 1519
  carcinomatoid *sarcoma of kidney*, [Uluhogian] 698—ab
  cells permeability vs. roentgen rays, [Magat] 1630—ab
  Clinic: See also Cancer nostrum
  clinic at University of Maryland Hospital, 1271
  complications, tularemia and syphilis, [Minehart] 1867—ab
  conference in Dresden, 282
  Cures: See Cancer nostrum
  diagnosis, [Wood] ★1141
  diagnosis, courses on, at the Johns Hopkins Hospital, 1185
  diagnosis, intramural inflammation of colon simulating, [Crane] ★261
  diagnosis, serologic, [Wright] 963—ab
  diagnosis, Slosse's sign: sensibility of neoplasm to action of pituitrin, 550
  embryonal, of testicle, [Champlin] ★96; [Wollheim] 693—ab
  endocrine glands and, 1189
  etiology, benzene derivatives of intestinal putrefaction in, [Grandjean] 1540—ab
  etiology, carcinogenic substances; fluorescent spectrums, [Kennaway] 373—ab; 423
  etiology, insufficiency of magnesia in body fluids, 1110
  etiology, parasitic or pseudoparasitic figures in, [Maisin] 973—ab
  etiology, perverted trophism, [de River] 372—ab
  etiology, tarred streets, [Lehmann] 1050—ab
  etiology, vitamin A and carcinogenesis, [Sugiura] 298—ab
  French League against, 674
  growth vs. epinephrine, [Sugiura] 1864—ab
  growth vs. high fat diets, [Sugiura] 298—ab
  hereditary influences in transmission, 141
  hereditary liability to, 682
  heredity, [Friedenwald] ★909
  hernia in Africans, [Connell] 968—ab
  hormone, and, 1350—E
  hospital, New York Skin and Cancer Hospital given a gram of radium, 1512
  in children *and young* people, [Pojarisky] 1630—ab
  in Congo natives, 1034
  in New York, 735
  in relation to military service, 610
  incidence by age and sex, [Pack] 297—ab
  incidence, common to whole German people, 1278
  incidence, increase in Bavaria, [Mertens] 1304—ab
  incidence, increasing *frequency in Copenhagen*, [Stage] 904—ab
  industrial, 611
  institutes, Japan, 425
  Italian League for Combating Cancer, 737
  metastases, [McWhorter] 1292—ab
  metastases from breast to bone, [Carnett] 369—ab
  metastases from bronchus, [Funl.] ★1879
  metastases from lung cause intestinal obstruction, [Barnard] 970—ab
  metastases from lungs to central nervous system, [Davison] 1910—ab
  metastases, in or directly underneath skin, [Uhlenbruck] 239—ab
  metastases, local, in breast cancer, [Schloffer] 1952—ab
  metastases, skeletal, from thyroid, [Levin] *1771—ab*

CANCER—Continued
mortality in 1929, Oregon, 669
mortality increasing, causes, 807
mortality rate, record, 1681
mortality statistics for 1928, Netherlands, 948
myelogenic cancerous anemia, [Mach] 973—ab
nostrum and quacks exposed, South Africa, 742
nostrum, Baker Institute, 285—BI
nostrum, Dugdale, 1523—BI
nostrum, Pavia, 1116—BI
nostrum, plaster treatment of O. C. Piper, 603
nostrum, Stroopal, 1037—BI
nostrum, Tilton Cancer Clinic closed, 601
precancerous changes in esophagus, [Schaer] 562—ab
prevention, mustard gas, 423
prize, Italian League for Combating Cancer, 737
prize of Uruguayan Association Against Cancer, 1436
research, Mack Foundation for, 134
research, Rockefeller gives buildings to Kaiser Wilhelm-Gesellschaft, 676
Research Society of Japan, 542
Serodiagnosis: See Cancer, diagnosis
suprarenal cortex and, [Woglom] ★473
tar, susceptibility to, vs. rabbits' color, [Wail] 241—ab
tarred streets cause, [Lehman] 1950—ab
tissue, embolism of renal vessels caused by, [Froewis] 1953—ab
treatment, Coffey-Humber, by injecting suprarenal cortex extract, 1349—E; 1350—E; [Coffey] 1376—ab
treatment, colloidal silver, [Stone] 228—ab
treatment, "curers" 1681
treatment, German Roentgen Society discuss, 141
treatment, lead plus selenium, [Todd] 1298—ab
treatment, liver extract contraindicated, [Stone] ★712
treatment, magnesia, 1110
treatment, mustard gas, 423
treatment, palliative, by morphine intravenously, [Iacobaeus] 312—ab
treatment, radium, 423; [Cheatle] 1623—ab; 1983
treatment, radium centers in Great Britain, 671
treatment, radium for state use, New York, 420
treatment, radium for use in New York City hospitals, *942*; *1512*
treatment, radium, hospital staffed by women for, 606
treatment, radium, oral appliance for, [Williams & Budd] ★1424
treatment, radium, postponed verdict on, 1437
treatment, radon seeds, [Souttar] 1209—ab
treatment, removal by surgical diathermy and electrocoagulation, [von Seemen] 240—ab
treatment, report on, Australia, 1983
treatment, small doses of roentgen rays, [Mieschor] 309—ab
treatment, surgical, [MacKee & Stone] ★1315
ulcer and, [Domanig] 310—ab; [Mayo] ★645; [Feldman] 1536—ab
Uruguayan Association Against Cancer, 1436
CANDIDO'S TEST, [Ferraro] 237—ab
CANDLES, in bladders, [Dickinson] 286—C
CANDY omission of, to prevent colds, [Higgins] 826—ab
CANNED FOODS: See Food
CANNON, C. J., explains his testimonial, 219—BI; 613—BI
CANNULA for injecting iodized oil, [Goodyear] ★1002
for use in pneumothorax, [Bigger] ★935
Southey's, for use in edema, [Bland & White] ★1489
CANTHARIDES plaster to demonstrate Bacillus leprae [Hu] 629—ab
CANTI'S METHOD, for detecting tubercle bacilli in spinal fluid, [Grey] 649—ab
CAPILLARIES: See also Telangiectasis
cerebral, hyaline degeneration, [Klissurow] 699—ab
permeability, gradient of, 938—E
physiognomy and, 1685
resistance test, [Weil] 696—ab
resistance test in hemorrhagiparous conditions, [Chalier] 1382—ab
skin, erythrocytes resistance in, [Montanari] 1625—ab
CAPITAL PUNISHMENT: See Death penalty
CAPITAN, DR., bust in memory of, 739
CAR sickness, [Lebensohn] 1455—ab
CARBOHYDRATES: See also Candy; Dextrose; Sugar; etc.
conversion of fat to; nonoxidation theory of diabetes, 1508—E
deficient diet, effect, [Gudjonsson] 1464—ab
diet, high, in pneumonia, [Bethea] ★925
diet, high-low calory, in diabetes mellitus, [Rabinowitch] 1615—ab
excess, endogenous eczematoid dermatitis due to, [Ramirez & Eller] ★1083

CARBOHYDRATES—Continued
metabolism disturbances in exophthalmic goiter, [Kugelmann] 1386—ab
metabolism of tumors, [Dickens] 628—ab
CARBOLIC ACID: See Phenol
CARBON, common compounds of, use in disease, [McDowall] 827—ab
dust and pulmonary disease, [Russell] ★1714
in Urine: See Urine
CARBON ARC: See Ultraviolet Rays
CARBON DIOXIDE, action in bronchoscopy in postoperative atelectasis, [Brown] ★100
carbonated water, frequently better relished than plain, 433
freezing of sciatic nerve in juvenile gangrene, [Läwen] 1462—ab
in Blood: See Blood
inhalation, Davis Inhalator, 200
inhalation in postoperative shock, atelectasis and pneumonia, [Henderson] ★572
inhalation, mouth to mouth insufflation in asphyxia, [Emmert] 368—ab; [Flagg] 446—ab
outbursts in mines, 605
snow, inducing tumors with, [Berenblum] 452—ab
snow plus cantharides plaster to demonstrate Bacillus leprae, [Hu] 629—ab
treatment of skin diseases, 222
venoconstrictor effect on circulation, [Gollwitzer-Meier] 458—ab
CARBON MONOXIDE poisoning, study of lungs and heart after, [Israelski] 700—ab
poisoning, Davis Inhalator for, 200
poisoning, disturbances due to, [Biancalani] 1383—ab
poisoning, Drinker respirator in, [Drinker & others] ★1251
poisoning, fatalities increase, 602
poisoning in a garage, condition at necropsy in, *1521*
poisoning without gas being extinguished (wash boiler boiled over), [Naville] 898—ab
CARBON TETRACHLORIDE, effects on skin, 65
to remove cod liver oil stains, 953
CARBONURIA: See Urine
CARBUNCLE in diabetics [Villegas] 1301—ab; [Maes] 1943—ab
treatment, bloodless, [Palacios] 1998—ab
treatment, irradiated substances, [Ried] 1218—ab
treatment, parallel incisions, [Curri] 900—ab
treatment, roentgen ray, [Leddy] 891—ab; [Light] 1296—ab
CARCINOMA: See Cancer
CARDIOLOGY, lectures on, by Dr. Clerc, 275
CARDIOSPASM: See Stomach
CARDIOTACHOMETER for studying heart beat, [Boas] 901—ab
CARDIOVASCULAR DISEASE: See also Blood Vessels; Heart; etc.
in obstetric patient, [Herrmann & King] ★1472
syphilitic, [Reid] 442—ab; [Wile] 556—ab
syphilitic, arsenicals intravenously in, [Hines & Carr] 438—ab; [Hines] 1698—ab
syphilitic, treatment, [Moore & Danglade] 556—ab; [Wile] 1698—ab; [Moore] 1698—ab
CARIES: See Teeth
CARMINATIVES, action of onion, 1284
action of alcohol, 672
CARNATION MILK, mineral values, [Weston] ★835
vitamins in, 1933
CAROTID BODY, tumor, [Brandberg] 312—ab; [Bager] 1790—ab
CAROTID SINUS, hyperexcitability, cardiac syncope from, [Roskam] 304—ab
CAROTIN and vitamin A, 937—E; [Wolff] 1385—ab
in butter, 1978—E
CAROTINEMIA, [Miller] 1377—ab
CARPUS: See Semilunar Bone, carpal; Wrist
CARRIERS: See Diphtheria; Disease carriers; Typhoid
CARROTS, carotinemia, [Miller] 1377—ab
Curtice Brothers Certified Nursery Foods, 486
iodine in, [Weston] ★835
top concentrate in alimentary anemia, [Weston] ★834
CARS: See Automobiles; Car sickness; Railroads; Street cars
CARSON, HERBERT WILLIAM, death, *1031*
CARTER, AMOS, 1750
CARTILAGE from radius is chipped off causing "baseball pitcher's elbow," [Kirby] ★404
Semilunar: See Knee
thyroid, dislocation of inferior cornu of, [Pasternacki] 770—ab
CASAMAJOR, LOUIS, elected to editorial board of *Archives of Neurology and Psychiatry*, 1103
CASCARA, Hinckle's, poisoning in children, [Aikman] ★1662
CASCO CASCARA BROMIDE QUININE LAXATIVE TABLETS, 883—BI
CASE histories, written by interns in hospitals, ★515; 535—E
CASE, ERNEST SPENCER, on alcohol formation in body, *615*; *1119*
CASE'S ANTISEPTIC OINTMENT, 1607—BI
CASSELBERRY PRIZE: See Prizes

CASTRATION, spaying the dog, 748
temporary, injurious effect on fetus, 142
CASTS, cement-starch mixtures as substitute for plaster of paris in tropics, [Taylor] 446—ab
CATALYSAN Tomarkin, tuberculosis treatment, 1690
CATARACT, congenital hereditary, therapeutic abortion in, [Fleischmann] 1305—ab
hereditary, [Hornback] 156—ab
peculiar to glaziers, 353
senile, age of patients operated on for, [Gradle] ★774
warrants out for "eye specialists," 803
CATARRH, nostrum, Creosotono, 430—BI
nostrum, Efedron Hart Nasal Jelly, 952—BI
nostrum, Forkola Jell, 883—BI
nostrum, Nos-I-Ons, 1606—BI
[illegible] 30—BI
[illegible] as a bactericide, 215
[illegible] Laxative Cold Tablets, 883—BI
Casco Cascara Bromide Quinine Laxative Tablets, 883—BI
constipation and, [Jordan] 1865—ab
Crane's Laxative Quinine Cold Tablets, 952—BI
Diemer's Laxative Grip and Cold Tablets, 1281—BI
effect on digestion, [Childrey] 1374—ab
Old Mission Laxative Cold Tablets, 1444—BI
Plant's Magnesia Wafers, 935
CATHETERIZATION, of right auricle of heart, [Diaz] 165—ab
ureteral, new urine collection tube holder, [White] ★662
urethral, epinephrine, to overcome difficulties in, 1112
CATS, motor area in, measurement, [Michaels] 297—ab
CATTLE: See Beef; Calf; Cows
CAUDA EQUINA, endothelioma, [Wakeley] 968—ab
sarcoma metastases in, [Miskolczy] 699—ab
CAULFEILD'S inhibitive reaction, [Ogden] 1862—ab
CAULIFLOWER EAR: See Ear
CAUTERY: See also Electrocautery
prophylaxis of puerperal sepsis, [Miller & others] ★923
treatment of cervix in child with endocervicitis, 1691
treatment of local infections, [von Bramann] 1387—ab
treatment of malignant tumors of bladder, [Stutzin] 1545—ab
CAVITY: See Abdomen; Body; Lungs; Peritoneum; Tuberculosis, Pulmonary
CECUM, Jackson's membrane, 1119
malformation, congenital intestinal occlusion due to, [Santi] 1998—ab
obstruction with appendicitis, [Speese] 1778—ab
perforation by toothpick, simulating appendicitis, [McLanahan] ★1424
route of infection in cholecystitis, [Rutherford] 1132—ab
stasis, relation to proximal colon stasis, [Kantor] 690—ab
tuberculosis, [Gershon-Cohen] 1861—ab
CEDAR, mountain, sensitivity to, factor in hay-fever, [Durham & Black] 293—ab
CELIAC DISEASE in young child, [De Murtas] 899—ab
so-called intestinal infantilism, [Edgren] 1060—ab
CELIALGIA: See Abdomen pain
CELLOPHANE guard, mortar with, for pulverization, [Dold] 1951—ab
CELLOSOLVE, toxicity of, 1989
CELLS: See also Blood cells; Cancer cells; Cytology; Nerve cells; Tumor cells; etc.
acidophilic, in thyroid, [Warren] 1296—ab
chemistry, 945
epithelioid, fibril-forming power in tuberculous tissue, [Wallgren] 1060—ab
giant, of benign giant cell tumors of bone, [Johnson] 1205—ab
keratinizing, vitamin A deficiency, 798—E
Kupffer: See Liver
nucleus, hemoglobin formation, [Villa] 635—ab
organ, serologic group differentiation, [Thomsen] 462—ab
permeability vs. roentgen rays, [Magat] 1630—ab
physiology, Kaiser Wilhelm-Gesellschaft for, 676
reactions, grant for study of, 1187
sickle, phenomenon, 416—E
CELLULITIS, orbital, in children, [Smith] 628—ab
CEMENT-starch mixtures for casts, [Taylor] 446—ab
industry and pulmonary disease, [Russell] ★1714
CENSUS of children with adenoids, Italy, 60
of infirm and abnormal persons, Netherlands, 354
taking and infectious disease, Japan, 1034
CENTRAL Institute for the Deaf, General Education Board gift to, 54
CEPHALOMETRY, fetal, in utero, [Thoms] ★21

CEREALS, decalcifying effect, [Weston] ★834
Grape Nuts, 595
Heinz Rice Flakes, 485
in nutrition, 1101—E
Kiddie Kanned Vegetables, Fruits and Cereals, 865
mixture, valuable, [Tisdall] 1773—ab
nutritive value, [Clough] 755—ab
proteins, biologic value, [Mattill] 756—ab
Ry-Krisp, ★486
Sun Wheat Biscuits, 595
vitamins, 268—E
CEREBELLUM, tuberculoma, [Jacarelli] 1872—ab
CEREBROSPINAL FEVER: See Meningitis, cerebrospinal
CEREBROSPINAL FLUID, albumin, determination, [Berger] 458—ab
calcium in epilepsy, [Parhon] 560—ab
cell count in prognosis of poliomyelitis, 1608
changes after spinal anesthesia, [Iason] 627—ab
chemical analysis, [Penfold] 629—ab
chemical and hydrostatic changes in cord tumors, [Woltman] ★1401
circulation; spinal block in meningitis, [Stookey & others] ★106; [Lyon] ★109
composition same as that of aqueous humor, 1593—E
drainage in alcoholic deliria, [Goldsmith] 1775—ab
edema fluid compared with, [Bland & White] ★1492
examination in latent infectious meningitis, etc., [Savy] 235—ab
leakage after stab wound of neck, [Shawan] ★1671
membrane in, value in tuberculous meningitis, [Ammerschläger] 1218—ab
of premature infants, [Glaser] 1773—ab
polypeptidorrhachia, [Flessinger] 696—ab; 1301—ab
Pressure: See also Intracranial Pressure
pressure artificially increased, .causes pain, [Pometta] 1215—ab
pressure, increased, differential diagnostic evaluation, [Mayer] 379—ab
protein content, [Grey] 694—ab
reaction to antimeningococcus serum, [Duryea] ★1582
relation to injection of air into cranium, 675
test, bicolored guaiac, [Greenfield] 1132—ab
test, Boltz (A.A.S.), [Walker] 1774—ab
test, colloidal gold, in dementia paralytica, [Unsworth] ★772
test, diagnostic value of colloid reactions, [Neel] 1464—ab
test, Pandy, Wassermann, in asymptomatic neurosyphilis, [Moore & Hopkins] ★1637
test, Taccone, in meningitis, [Chistyakova] 1789—ab
test, Takata-Ara colloidal, [Karnosh] 1534—ab
tubercle bacilli in, Canti's method modified for detecting, [Grey] 694—ab
use of intraspinal medications, 1196
CEREBRUM: See Brain
CERVICITIS; CERVIX: See Uterus
CESAREAN SECTION, cervical, analysis of 874, [Greenhill] 78—ab
extraperitoneal, [Steele] 621—ab
hysterectomy in, [Fullerton & Faulkner] ★1563
in contracted pelvis, tests of labor before, [Brouha] 1213—ab
low, prognosis, 1602
technic, choice of method, [Goussakoff] 759—ab
CHAMBER OF COMMERCE (U. S.), health contest, 1187; 1597
CHAMPIONNIÈRE, JUST-LUCAS, 1758
CHARACTER training and scientists, 343—ab
depend on genes, 1021—ab
food man chooses and, 1636—ab
CHARGES, proper preparation of, 46
CHARITY: See also Poor
General Association of French Physicians to aid indigent or old physicians, 353
in private practice, Medical Society of Milwaukee county report, 943
practice of medicine by *philanthropic* organizations, A. M. A. Judicial Council report on, 46
St. Louis Pure Milk Commission discontinues free milk for infants, 1921
CHAULMOOGRA action on skin, 363
65 recoveries from leprosy, 1597
CHEEK, cancer, [Simmons] 1777—ab
CHEESE, danger of wrapping in tinfoil, 1188
digestion of, [Childrey] 1374—ab
Swiss, tubercle bacilli in, [Sobernheim] 1783—ab
CHEMICAL FOUNDATION: See Foundations
CHEMISTRY: A. M. A. Council on: See under American Medical Association
basic, gift to National Institute of Health for fellowships and studies in, 136
correlation of university research, [Holloway] ★463
of Blood: See Blood
of cell, 945
CHEMISTRY—Continued
of Cerebrospinal Fluid: See Cerebrospinal Fluid
physical reasonableness of life, [Hill] ★1393
premedical requirements, [Clarke] 159—ab
CHEMOTHERAPY, [Miller] ★466
CHEST: See Thorax
CHESTNUTS, horse, poisoning in children, [Aikman] ★1662
CHEWING GUM, Slends, ★723; 730—E
CHEYNE-Stokes Respiration: See Respiration
CHICAGO: See also University of Chicago
Dietetic Supply Company, questionnaires sent to diabetic patients, [Duffie] 1688—C
Medical School, refused recognition by licensing boards, ★505; 535—E
Medical Society, reduction in rates for nurses, 1920
Society of Allergy, organized, 1677
CHICKENPOX, blood changes in, [Carrara] 1540—ab
blood transfusion in, [Landon] 1531—ab
complications, nervous, [Borra] 305—ab
investigated at Rockefeller Institute, 942
ipsonic index in children convalescent from, [Piana] 1540—ab
purulent meningitis with cortical reaction after, [Lavastine] 1947—ab
therapeutic effect on preexisting epilepsy, [Guthrie] 1534—ab
CHILBLAINS, melted paraffin wax bath and ultraviolet rays for, [Humphris] 1623—ab
CHILD LABOR, Italy, 1190
CHILDREN: See also Education; Girls; Illegitimacy; Infants; Nursery; Nutrition; Paternity; and under names of diseases as Diabetes Mellitus; Tuberculosis; etc.
adenoids, Italy, 60
American Child Health Association to study conditions in Porto Rico, 619
A. M. A. resolution on foreign bodies from toys being swallowed by, (V. 94) 2073
amyotonia in, 939—E
blood of, leukocytes in, [Erlich] 1213—ab
blood pressure in normal, [Chabrun] 1782—ab
born in year of earthquake, Japan, 1034
Brooklyn Society for Prevention of Cruelty to Children, 603
Camps: See Camps
Child Guidance Clinic, New York, 1512
Child Guidance, Institute for, fellowships in psychiatry and psychology, 209
childhood misfitting, common causes, [Richards] ★1013
Children's Fund (Couzen's) clinics, etc., 134; 1185; 1356; 1678
clinics for those of laborers, 353
Crippled: See Crippled Children
critical period of childhood (5 to 10 years of age), [Gay] 75—ab
dementia paralytica in, [Menninger] ★1499
Diseases in: See Eye disease; Heart disease; Pediatrics; Peptic Ulcer; Syphilis; Tuberculosis; etc.
fear is a mental deformity, 1472—ab
health habits for, [McCord] 75—ab
health in Australia, 1984
health of Maori school children, 58
health, to whom does it belong? [Richards] ★1011
Hospital: See Hospitals
hygiene, week of, France, 674
Illegitimate: See Illegitimacy
incidence of recurrent respiratory infections in, [McLean] ★1338
malnourished and convalescent, tuberculosis contacts, summer health schools for, 802
marriage, India, 137; 1188
metabolism, zinc in, 213
mortality, League of Nations inquiry, 354
playgrounds, first aid at, 1032
poisonings of, in New York State, [Aikman] ★1662
preschool, protein requirement, 1350—E
psychology and pediatrics, [Anderson] ★1015
school, advanced tuberculous infection, [Opie] ★1151
school, diet of, 212
school, hearing tests for, 1184
school, periodic height and weight measurements, [Holst] 978—ab
school, sight conservation, 1842
sex perversions in, 1191—E
sick, nutrition, [Peterman] 1126—ab
Sixth Pan American Child Congress, 943
strychnine poisoning in, [Aikman] ★1661
"Thin Child and Calcium," in *Good Housekeeping*, 1038
tonsillectomized, comparative study, [Kaiser] ★837
training, foundation of school of, Paris, 212
training nurses for, Germany, 812
training, patterns of incipient mental disturbances, 188—ab
training young children, [Anderson] ★1017
welfare, Congress of Nepiology, 947
welfare department of the Istanbul asylum, Turkey, 1683
welfare, W. K. Kellogg Child Welfare Foundation, 1751; 1923
welfare, Russia, 1192
White House Conference on Child Health, [Baker] 1018—ab; 1514; 1746—E, 1765—ME
CHILLS, nostrum, Flu-Caps, 1195—BI
nostrum, Mendenhall's Chill and Fever Tonic, 1038—BI
CHILOMASTIX infection, complement fixation test in, [Craig] ★10
CHIMNEY-SWEEPS, cancer in, 611
CHINESE, blindness in, [Chang] 1538—ab
colleges, scientific specimens to, 877
color problem in England, 210
Giardia intestinalis infestation in, [Tao] 1538—ab
Herb Company, 745—BI
League of Nation's program for, 736
susceptibility to scarlet fever, 664—E
CHINIOFON-Searle, 865
CHIROPRACTORS: See also Medicolegal Abstracts at end of letter M
prosecutions by Board of Medical Examiners, New Jersey, 602
seek separate examination boards, Illinois, 418
CHIROTHESIAN, violations of medical practice act, California, 940
CHLORACETIC ACID: See Acid, *trichlor*-acetic
CHLORAL hydrate to prevent cocaine intoxication, 1839—E
*di*CHLORETHYL-SULPHIDE (mustard gas) prevents onset of cancer, 423
prize for method of detecting, 1436
CHLORETONE, Inhalant Chloretone, Creosote and Eucalyptol-Sorensen, 729
CHLORIDES: See also Calcium chloride; Sodium chloride; etc.
chlorination in acute diseases, [Achard] 1782—ab
effects of loss of gastric juice, 936—E
CHLORINATED SODA, surgical solution, for irrigating empyema cavity, 886
surgical solution in osteomyelitis of skull, [Woodward] ★927
CHLORINE, amount necessary to destroy typhoid bacilli in water, 67
ions for bromide intoxication, [Harris & Hauser] ★94; [Weidman] 1281—C; [Goldenberg] 1689—C
metabolism in pneumonia; [Scholz] 1627—ab
CHLOROFORM Anesthesia: See Anesthesia
effect on uterus, [Bourne] 827—ab
heart irregularities under, [Brow & others] ★715
syncope, secondary, treatment, [Garrelon] 455—ab
CHLOROMA, acute myeloblastic, treatment, [Rosenblum] 977—ab
discussed at regional Italian Congress of Pediatrics, 877
CHOCOLATE, Horlick's Sweet Chocolate Flavor Malted Milk, 595
CHOKED DISK: See Nerve, optic
CHOLANGEITIS: See Bile Ducts Inflammation
CHOLECYSTECTOMY: See Gallbladder excision
CHOLECYSTITIS: See Gallbladder inflammation
CHOLECYSTOGRAPHY: See Gallbladder roentgen study
CHOLEDOCHUS: See Bile Duct
CHOLELITHIASIS: See Gallbladder calculi
CHOLERA, immunization in French army, 808
immunization with bacteriophage, 873
increases in *Philippines*, 209
pathogenesis, 674; 1190
treatment, common compounds of carbon, [McDowall] 827—ab
vaccine, Haffkine, 1599
CHOLESTEROL and anemias, 596—E
in Blood: See Blood
CHOLEVAL intravenously in inflammation or stone in gallbladder, 1447
CHOLINE and lecithin, new reaction, [Sánchez] 1057—ab
hepatic vein reactions in circulatory correlations, 868—E
in placenta: ecbolic action, [Wrede] 306—ab
CHONDRODYSPLASIA, [Blount] 1126—ab
CHONDROFIBROMA, spherical, anterior to the dura, [Woltman] ★1400
CHORDOMA, sacral, with metastases, [Willis] 1946—ab
CHOREA, before and after tonsillectomy, [Kaiser] ★838
of pregnancy, [Selitzky] 630—ab
prevention of rheumatic manifestations, salicylates in, [Leech] ★932
typhoid cures, 1113
CHORIO-EPITHELIOMA, diagnosis, Aschheim-Zondek's test, [Ehrhardt] 832—ab
disappearance of primary uterine tumor, [Novak] 1203—ab
of testis, [Scheftel] 1706—ab
ovarian and pituitary changes with, [Novak] 1773—ab
pituitary hormone in tissues, [Zondek] 1788—ab
uteri, malignant, [Schmitz & Hueper] ★1113
CHROMOGEN, carotene feeding led to development of, in liver, 937—E
CHRYSOPIDAE, bites by an aphis lion, 1855
CHURCH: See also Clergymen; Religion
attitude toward abortion, 1191
birth control and, *England*, 874; 1516; 1757
Congress, eugenics at, 1377

- CICATRIX, bone formation in cystostomy scar, [Rolland] 235—ab
  - endometriosis of laparotomy scars, [Keene & [Kimbrough] ★1166
  - painful postoperative abdominal, [Bancroft] 824—ab
  - scalpel surgery for, [MacKee & Stone] ★1317
- CIGARETS, Lucky Strike, testimonial industry, 679—BI
- CINCHONA in malaria, [Bass] ★988
  - three hundred years of, in medicine, 1350—E
- CINCHOPHEN, intravenous therapy with, 1284
  - intoxication, liver disorders in, [Vajda] 1875—ab
  - preparations, liver atrophy due to, 345—E; [Rabinowitz] ★1228
- CINEMA: See Motion Pictures
- CINEMATOGRAPHIC LIBRARY, 59
- CIRCULATION: See Blood; Cerebrospinal Fluid
- CIRRHOSIS: See Liver
- CISTERNA MAGNA, injections of Flexner's serum in spinal block in meningitis, [Stookey & others] ★106
  - reaction to antimeningococcus serum, [Duryea] ★1582
- CITIES, hygiene, 1685
  - responsibility for drinking water, 139; 278
- CITRINE ointment, Casey Wood's, for interstitial keratitis, 1041
- CIVILIZATION, plagues and growth of, 1821—ab
  - thinking revolutionized by science, 1824—ab
- CLADOSPORIUM, palmar mycotic keratosis, 1111
- CLAM quarantine raised, California, 734; 1510
- CLARK, ELMER E., impostor, 671
- CLARK, EVANS, cost of medical care, 1266—E
- CLAUDE-Bernard-Piedelievre test, 550
- CLAUDICATION, intermittent, internal secretion of pancreas ("kallikrein") for, 676
  - intermittent hyperpyrexia produced by baths for, [Mehrtens & Pouppirit] ★1910
  - intermittent, "nail symptom" during, [Schlesinger] 902—ab
- CLAVICLE, sternal end enlarged sign of congenital syphilis, [Higoumenakis] 1627—ab
  - fracture, complete resorption of bone after, [Rothermel] 831—ab
  - reduction of, intramedullary beef-bone graft in, [Brockway] 825—ab
- CLEANING, iritis as industrial disease in cleaner and presser, 551
- CLEGHORN, CHARLES D., report on the Pavia cancer cure, 116—BI
- CLERC, ANTONIN, lectures on cardiology, 275
- CLERGYMEN, heart disease in, [Horine] 1129—ab
- CLEVELAND Medical Library Association museum, replica of A. M. A. president's medal to be placed in, 1103
- CLIMACTERIC: See Menopause
- CLIMATE: See also Altitude; Seasons; Weather
  - artificial, baths as, in treatment of rheumatism in winter, [Fox] 233—ab
  - for tuberculous ostearthritis, [Bufnoir] 1135—ab
  - Labrador—lesson in practical nutrition, 665—E
  - mountain, for splenectomized persons, [Greppi] 761—ab
  - responsible factor in etiology of diabetes, [Mills] 1939—ab
  - treatment, Hydrologic Convention, 878
  - tropical, artificial, gastric function in, [Borchardt] 458—ab
- CLINE, B. J., Poplar Bluff, Mo., 1688—BI
- CLINICAL conferences, reprints by *Journal-Lancet*, 1678
  - Congress of Connecticut State Medical Society, 348
  - diagnosis, [Billings] 646—ab
  - investigation the handmaiden of medicine, [Mayo] ★644
  - Laboratories: See Laboratories
  - pathologist, rôle, [Sanford] ★1465
  - signs of heart disease, [Herrick] ★1631
  - Thermometers; See Thermometers
- CLINICIAN, value of electrocardiograph to, [Fountain] 76—ab
- CLINICS, allergy, European, work in, [Sterling] 294—ab
  - A. M. A. Judicial Council report on practice of medicine by, 46
  - appointment of new heads of, Vienna, 214
  - Arnett-Crockett Clinic case, saving of tax on earned income, 43; 50
  - birth control, at large hospitals, India, 1358
  - birth control, experience, 1924
  - cancer, at University of Maryland Hospital, 1271
  - cancer, Tilton Cancer Clinic, 601
  - Child Guidance Clinic New York, 1512
  - children of laborers to have, Sumatra, 353
  - children's clinic, Michigan, 134; 1185; 1356
  - dental, Eastman, London, 1845
  - dental, Eastman, Stockholm, 1921
  - diagnostic, at its worst, 1095—ab
  - diagnostic, at its best, 1179—ab
  - French, American aid for, 1925
  - group, [Irons] ★215
- CLINICS—Continued
  - *Indian, Wisconsin*, 511; 872
  - jaw surgery, Berlin, 1849
  - Metabolic, Grace Deere Velie, 1352
  - Michigan Research Clinic, 601
  - Neuropsychiatric Problem, 1751
  - opening of medical clinics in Genoa, 59
  - orthopedic, county, extension of, Maryland, 273
  - Osler Clinic, nears completion, 871
  - periodic health examination, 539
  - relation to medical profession, [Blumer] 232—ab
  - tuberculosis, itinerant, Georgia, 803
  - *tuberculosis, syphilis in*, [Greer] 1862—ab
  - tumor research, 1842
  - *venereal disease*, [Irons] ★245
  - Vienna, securing directors for vacancies in, 1986
- CLONORCHIS sinensis and primary cancer of liver in Chinese, [Strong] 691—ab
- CLOTHING, style of, and breast prolapse, [Farrar] ★1329
- CLUBBFOOT: See Foot
- COAGULATION: See Blood
  - Electric: See under Diathermy
- COAL dust, occupational cancer, 611
  - dust, tuberculosis and anthracosis, 1033; [Russell] ★1714
- COCA COLA, intoxicating effect of using aspirin in, 1366
- COCA-GROVE test, 1593—E
- COCAINE, illicit traffic, 605
  - intoxication, prevention, 1839—E
  - suppository anesthesia, [Fryszmann] 1544—ab
- COCCIDIOIDES granuloma, 667—E
- COCCYX, hernia, [Pagenstecher] ★1588
- COD LIVER OIL with Viosterol 10 D, 1021; 1023—E
  - effect on growth of bone, [Mitchell & Nelson] ★1896
  - extract, exposed to ultraviolet rays or ozone for tuberculosis, [Bergman] 977—ab
  - heart lesions produced by, electrocardiogram in, [Agduhr] 637—ab
  - hypervitaminosis with vitamin D, 1023—E
  - irradiated, and eosin in pulmonary tuberculosis, [Hildebrand] 622—ab
  - McKesson's Vitamin Concentrate of Cod Liver Oil, 1347
  - Maltine with Cod Liver Oil and Iron Iodide, 1505
  - Mead's 5 D Cod Liver Oil with *Viosterol*, 200
  - stains, removal, 953
  - Standardized Cod Liver Oil (P. D. & Co.), 729
  - treatment of tuberculosis, [Scheurlen] 829—ab; [Van Leersum] 829—ab
  - vitamin A and carotene, 937—E
  - vitamin A in, 347—E
  - vs. viosterol, 38—E; [Hess & others] ★316; 798—E; [Holmes] 895—ab; [Mussehl] 1281—C
  - White's Cod Liver Oil Concentrate, 663
- CODEINE *in hay-fever, [De Rachewsky]* 1213—ab
- CODEMENE tablets, poisoning in children, [*Aikman*] ★1662
- COFFEE: See also Caffeine
  - for invisible writing, [Langen] 1628—ab
- COFFEY-HUMBER *cancer treatment*, 1349—E; 1350—E; [Coffey] 1376—ab
- COG WHEEL breathing, [Hebert] 1458—ab
- COLD Abscess: See Abscess
  - air, exposure to, eruption from, [Duke] 293—ab; [Ramirez & Eller] ★1082
  - paroxysmal hemoglobinuria due to, liver therapy, [Lichtmann] 634—ab
  - reactions of vessels of human skin to, [Lewis] 374—ab
  - sensitivity to, 1283
- *COLD CREAMS, [MacKenna] 80—ab*
- COLD FIX TABLETS, 882—BI
- COLDS, before and after tonsillectomy, [Kaiser] ★837
  - caused only by sense of heat or cold, [Duke] 293—ab
  - common, [Dochez] 1941—ab
  - common, Chemical Foundation gift for study of origin, nature and possible cure, 1271
  - common, due to filtrable virus? 1837—E
  - common, etiology, [Shibley & others] ★1553
  - epidemic due to type V pneumococci, [Schroder] 231—ab
  - incidence in childhood, [McLean] ★1338
  - Labrador—lesson in practical nutrition, 665—E
  - nostrum, A.D.S. Cold and Grippe Tablets, 1444—BI
  - nostrum, Ampco Laxative Cold Tablets, 883—BI
  - nostrum, Cold Fix Tablets, 882—BI
  - nostrum; Crane's Laxative Quinine Cold Tablets, 952—BI
  - nostrum, Diemer's Laxative Grip and Cold Tablets, 1281—BI
  - nostrum, Foley's Cold and Grippe Tablets, 1606—BI
  - nostrum, Goodwin's Cold Breakers, 1038—BI
  - nostrum, Hi-Grade Kold Breakers, 680—BI
- COLDS—Continued
  - nostrum, Hyland's 14, 745—BI
  - nostrum, Kidder's Cold and Grippe Tablets, 1195—BI
  - nostrum, Klein's Cold and Grippe Capsules, 1195—BI
  - nostrum, Knoxa Cold Tablets, 680—BI
  - nostrum, Laxacold, 1280—BI
  - nostrum, Michael's Cold Tablets, 1280—BI
  - nostrum, Nyal Cold Capsules, 1281—BI
  - nostrum, Old Mission Laxative Cold Tablets, 1444—BI
  - *nostrum, Over Night Cold Tablets*, 430—BI
  - nostrum, Rapid Quinine Laxative Cold Tablets, 1606—BI
  - nostrum Schieffelin Cold and Grippe Tablets, 1038—BI
  - nostrum, Stout's Cold Tablets, 1195—BI
  - nostrum, Yago One Day Cold Tablets, 883—BI
  - prevention, high fat feeding, omission of candy, etc., [Higgins] 826—ab
  - prevention, vaccine, [Murray] 1619—ab
  - sand fly as exciting cause, [Parlato] 558—ab
- COLECTOMY: See Colon, surgery
- COLGATE COMPANY, advertising of dentifrice, 1267—E
- COLIC: See Gallbladder
- COLITIS, chronic, in tropics, pathology, [Menon] 1053—ab
  - intramural, cimulating cancer, [Crane] ★261
  - treatment, 1446; 1691
  - ulcerative, 613; [Sachs] 825—ab
  - ulcerative, chronic, with multiple polyps, [Bargen] 1047—ab
  - ulcerative, complicating abdominal operations, [Bargen] 372—ab
  - ulcerative, psychogenic factors in etiology, [Murray] 891—ab
  - ulcerative, regional migratory chronic, [Bargen] 300—ab
- COLLAPSE caused by arsphenamine injection, treatment, [Wirz] 1304—ab
  - Therapy: See Tuberculosis, Pulmonary, *thoracoplasty*
- COLLAR for support of head in vertebrae fractures, [Le Fevre & Jackson] ★1669
- COLLECTIONS: *See Accounts*
- COLLEGE OF PHYSICIANS AND SURGEONS, *Boston, refused recognition*, ★505; 535—E
- COLLEGES: See Schools, Medical; Students; Students, Medical; University
- COLLINS, FREDERICK L., on high cost of being sick in *Ladies' Home Journal*, 1266—E
- COLLOIDS: See also Lead; Silver
  - Reactions: See Cerebrospinal Fluid
  - urinary, vs. stone formation, [Newcomb] 1053—ab
- COLOGNE WATER: See Eau de Cologne
- COLON: See also Colitis
  - anomalies, congenital, digestive disorders from, [Peigneaux] 81—ab
  - ascending, persistence embryonic mesentery of, [Hemsley] 1210—ab
  - cancer, partial colectomy for, [Moreau] 971—ab
  - contents, reaction, [Mann & Bollmann] ★1722
  - diseases, sigmoidoscopy vs. x-rays in diagnosis, [Yeomans] ★1907
  - dogs deprived of, digestion in, [Childrey] 1374—ab
  - elongation, treatment, 1524
  - irrigation, Austin's Irrigators, 343
  - Jackson's membrane, 1119
  - left, torsion of an appendix epiploica of, [Braine] 1055—ab
  - megacolon, [Starling] 1996—ab
  - megacolon in children, ganglionectomy for, *1112*
  - megacolon, ramisection for, [Royle] 1780—ab
  - megacolon, successful operation in, [Ege] 1545—ab
  - megacolon, sympathetic inhibition in, [Scott] 1864—ab
  - pelvic, diathermy of, [Soper] 299—ab
  - polyps in chronic ulcerative colitis, [Bargen] 1047—ab
  - *resection, [Gehrels] 893—ab*
  - *soap suds enemas effect on, 1608*
  - spastic, [Gauss] 227—ab
  - *stasis, proximal, vs. cecal stasis, [Kantor]* 690—ab
  - Surgery: See Colon cancer; Colostomy
  - Ulcerated: See also Colitis, ulcerative
  - ulcerated, perforation caused by contrast medium, [Kaulich] 1140—ab
- COLON BACILLUS: See Bacillus
- COLONIES, French, birth rate of Europeans in, *1111*
  - Medical Service: See Medical Service
- COLORIMETER method for estimating blood urea, 1366
- COLOSTOMY, for rectal cancer, [Dannheisser] 1138—ab
  - obliteration of distal portion of bowel after, [Lewin] 1952—ab
- COLOSTRUM, black, analogous to melanidrosis, [Greig] 1380—ab
- COLOTYPHLITIS: diagnosis, [Oltramare] 630—ab
- COLSUL, pyrogenic action, [Shilvock] 1132—ab
- COLUMBIA UNIVERSITY, 1106; 1596; 1752

COLWELL, NATHAN P., leave of absence for, 1103
COMA: See Alcoholism; Diabetes Mellitus
COMFORT, sensation of, skin temperature in relation to, [Ward] 753—ab
COMMERCE. U. S. Chamber of: See Chamber of Commerce
COMMITTEE ON COSTS OF MEDICAL CARE, 45; 599—E; 1266—E
COMMITTEE ON GRADING OF NURSING SCHOOLS, 1029; 1187
COMMITTEES, A. M. A.: See under American Medical Association
COMMONWEALTH FUND selects site for rural health project, Massachusetts, 1105
COMMUNICABLE DISEASE: See also Infectious Diseases; Tuberculosis; Typhoid; etc.; and Medicolegal Abstracts at end of letter M
  conferences on, Michigan, 1185
  reduction in, 601
COMPENSATION: See also Fees; Workmen's Compensation Acts; Medicolegal abstracts at end of letter M
  for automobile accidents proposed, Wisconsin, 1434
COMPLEMENT effect on sensitiveness of complement-fixation tests for syphilis, [Havens] 1206—ab
  fixation reaction in gonorrhea, [Petersen] 461—ab
  fixation reaction in rhinoscleroma, [Elbert] 970—ab
  fixation test in amebic infections, [Craig] *10
  fixation test in leprosy, 427
  fixation test in tuberculosis, [Wadsworth] 1862—ab; [Terrell] 1945—ab
  fixation test, yeasts studied by, [Stone] 1380—ab
CONCEPTION, Prevention of: See Birth Control
CONDUCT: See Behavior
CONGO BLUE, gradient of capillary permeability, 938—E
CONGRESS: See also French; International Congress; and under Societies at end of letter S
  clinical, of Connecticut State Medical Society, 348
  Gynecology and Obstetrics, Belgium, 1602
  medical congresses, Argentina, 547
  of Balneology, 62
  of Far East Association of Tropical Medicine, 877
  of French Physicians, 805
  of French-speaking Physicians, 875
  of International League for Sexual Reform on Scientific Basis, 1191
  of Italian Society of Laryngology, Otology and Rhinology, 1029
  of Legal Medicine, French, 808
  of Legal Medicine, Italian, 809
  of [illegible]
  of [illegible]
  of [illegible] s, 1439
  of [illegible] 675
  of [illegible]
  of Surgery, Argentine, 1847
  of Urology, 1845
  on Occupational Accidents and Diseases, 60
  National Medical Congress, Turkey, 1683
CONGRESS (U. S.), medical bills in, 56; 136; 1923
  Senate committee hearings on ergot, *727; 730—E
  Senate committee investigation of Ambruster propaganda, *722; 730—E
CONJUNCTIVA infection, persistent, 1524
  manifestations of trichinosis, [Carter] *1420
  sarcoma, [Morton] *1804
  tunica, malignant melanoma, [Heinonen] 638—ab
CONNECTICUT State Medical Society, clinical congress, 348
CONNECTORS, rubber flask, [Pottenger] *1503
CONSANGUINITY, 949; 1477—ab
CONSTIPATION: See also Cathartics; Intestines, stasis
  bread effect on, [Mottram] 234—ab
  catharsis and, [Jordan] 1865—ab
  [illegible] [Royle] 1780—ab
  [illegible] *1076
  [illegible] 882—BI
  sulphemoglobinemia, [Harrop & Waterfield] *647
  treatment, [von Noorden] 1875—ab
  treatment, by nasal spray of surgical pituitary extract, [Sophian] 894—ab
CONSTITUTION, broadly built persons superior to slender types, [Schlesinger] 1059—ab
  hereditary transmission and, 610
  physical defects in school children, 1440
  relation to gastro-intestinal disorders, [Friedenwald] *905
  rôle in leprosy, [Kusnetzow] 376—ab
  type of women, Parisot-Richard's test, 550
  uterine hemorrhage of constitutional origin, [Sharman] 453—ab
CONSULTATION center for deformed persons, 282
CONTAGION: See Infection
CONTAGIOUS DISEASE: See Infectious Disease
CONTRACEPTIVE Devices: See Birth Control
CONTRACT PRACTICE: See Medicine, contract practice
CONTRACTS: See Medicolegal Abstracts at end of letter M
CONTRACTURE, Dupuytren's: See Muscles
  in burns; whirlpool baths and posterior splinting to overcome, [Hilbert] *1021
  ischemic, impending, [Nelson] 1622—ab
  reconstructing axilla for, [Garlock] 1943—ab
CONTUSIONS, hernial, [Chabrut] 1540—ab
  renal, 1845
CONVALESCENCE: See also Erysipelas; Scarlet Fever
  care of disabled, [Mock] *33
  children, opsonic index in, [Piana] 1540—ab
  homes, hospitals aided by, United Hospital Fund report, 1433
  postinstitutional care, 1440
  Serum: See Serum
CONVULSIONS: See also Eclampsia; Epilepsy; Spasmophilia; Tetany
  diagnosis of convulsive seizures, 362
  effect of intercurrent febrile disorders on, [Guthrie] 1534—ab
  in healed tuberculoma of brain, [Paterson] 560—ab
  narcosis for [Bleckwenn] *1168
  strychnine poisoning in children, [Aikman] *1661
COOKING, use of aluminum for, 1849
COPELAND, ROYAL S., commenting on alleged irregularities in control of ergot preparations, *729; 730—E
COPERNICUS, prescription of, 1114
COPPER: See also Bronze
  in commercial brands of milk, [Weston] *835
  in diet, [Stone] *713
  in liver, [Weston] *836
  in oranges and tomatoes, [Weston] *834
  poisoning, hemochromatosis, 1022—E; [Nye] 1762—C
  sulphate tellurite medium for diphtheria bacilli, [Allison] 1297—ab
  treatment of anemia, [Dwyer] 232—ab; [Giffin & Watkins] *591
  treatment of aspergillus infection of hand, [Myers & Dunn] *794
COPYRIGHT: See Patents; Medicolegal Abstracts at end of letter M
CORACOID process, elongation of, for shoulder dislocation, [Wilmoth] 1134—ab
CORN, pellagra in South Africa, 810
  meal in ideal cereal mixture, [Tisdall] 1773—ab
  Starch: See Starch
  syrup in infant's feeding, [Wright] 1616—ab
  syrup, vitamins in, 1933
  ustilagianism from smut of maize, [Mayerhofer] 1544—ab
  vitamin A and carotene, 937—E
CORNEA: See Keratitis
  Softening: See Keratomalacia
CORNELL University, appointments, 1354
CORONARY ARTERY: See Arteries
CORONARY SINUS communication with coronary artery, [Halpert] 373—ab
CORONER, necropsies performed by practitioners on command of, 874
CORPORATIONS, practice of medicine by, A. M. A. Judicial Council report, 46
CORPSE: See Cadavers
CORPUS LUTEUM, difference between sex hormone and, 1445
  extract for menstrual disorders, [Novak] *1221
  extracts to prolong pregnancy, [Miklòs] 1060—ab
  hormone and cancer, 1350—E
  treatment of essential hypertension, [Ayman] *247
CORSET for lumbar spondylitis, [Sinding-Larsen] 978—ab
CORYNEBACTERIUM (C. quasisterilum), gram-negative, [Cooper] 692—ab
CORYZA: See Colds
COSMAS PHARMACAL COMPANY, 882—BI
COSMETICS, forbid barbers to sell, 1114
  modern, [MacKenna] 80—ab
  toilet water dermatitis, 40—E; [Lane & Strauss] *717
COTTON mill, exposure to aniline dyes and hydrogen sulphide in, [Harrop & Waterfield] *648
  industry and lung disease, [Russell] *1714
  tampon, use in place of pad during menstruation, 747
COTTONSEED oil, brominated, pharmacology, [Smith] 1617—ab
COUGH, manifestation of hypersensitiveness, [Colmes & Rackemann] *192; [Waldbott] 431—C
  drops, arsenic in, 1109
  drops, Smith Brothers' Cough Drops, etiology of asthmatic attacks, 885
  nostrum, Astyptodyne and Astyptodyne Cough Syrup, 1444—BI
  nostrum, Hogan's Old Reliable Cough Syrup, 952—BI
  nostrum, McLean's Tar Wine Cough Balm, 1606—BI
COUGH—Continued
  nostrum, Sternox, 1038—BI
  plate method, early diagnosis of whooping cough by, [Sauer & Hambrecht] *263
COUNTERIRRITANTS, use in respiratory infections, 67
COUNTY Societies: See Societies, Medical
COURTS, criminal, A. M. A. resolution on psychiatric service in, 50; 316—E, [Hoffman] 681—C
  expert medicolegal service and its modifications, 809
  Supreme Court upholds basic science law, Minnesota, 1433
COUZEN'S Children's Fund, 134; 1185; 1356; 1678
COWPOX substance, Leyden, [Gorter] 978—ab
COWS: See also Calf; Milk; Tuberculosis, bovine
  undulant fever, [Sievers] 638—ab
COX, CHARLES RUSSELL, conviction, 942
COXA VARA: See Hip Joint
COYOTES, tularemia contracted from, 1351—E
CRACKERS, Hollie's Reducing Crackers, 882—BI
CRAMP, diagnosis of pain in toe and foot, 615
CRANE'S Laxative Quinine Cold Tablets, 952—BI
CRANIOTABES, value of viosterol and cod liver oil, [Hess & others] *318
CRANIUM, aneurysm in, possible, 1118
  fracture in childbirth, 746
  fractures, depressed, effects, [Naffziger] 626—ab
  injection of air into, in hydrocephalus and infantile epilepsy, 675
  injury, diabetes insipidus from, [Bianchetti] 697—ab
  injury in new-born, [Munro] 1295—ab
  of Peking man, 1358
  osteomyelitis, [Myers] *406; [Woodward] *927
  Pressure in: See Intracranial Pressure
  radiographic anatomy, 607
  radium applied to, in treatment of essential hypertension, [Ayman] *247
  roentgen photography of bones at base, [Christiansen] 904—ab
  tumors of base, 607
CREAMS, cold and vanishing, [MacKenna] 80—ab
CREATINURIA: See Urine
CREDIT Association, County Society forms, Indiana, 207
CREED, scientists', [Hill] *1397
CREMATION in Australia, 216
CREOSOTE, Inhalant Chloretone, Creosote and Eucalyptol-Sorensen, 729
CREOSOTONO, 430—BI
CRESOL poisoning in children, [Aikman] *1662
  triorthocresyl phosphate cause of "ginger jake," 1029; 1672—E; [Smith] 1700—ab
CRESYL, triorthocresyl phosphate, etiology of ginger paralysis, 1029; 1672—E; [Smith] 1700—ab
CRIDER, JOSEPH O., 1271
CRILE CLINIC, Dr. Haden goes to, 510
CRIME detection, symposium on, 668
  effect of mysticism on, in modern society, 808
  effect of sex life of women on, 1442
  psychiatry in relation to, 316—E; [Hoffman] 681—C
CRIMINAL Courts: See Court
  law, from psychologist's standpoint, 675
  methods of invisible writing, [Langen] 1628—ab
CRIMINOLOGIC laboratory proposed, 352
CRIPPLED children, clinics for, Maryland, 273
  children, plan for care of, Queensland, 1983
  children, state care, Virginia, 670
  new problems of orthopedic surgeon, [Francisco] *1467
  persons, consultation center for, 282
  rehabilitation of disabled [Mock] *31
  White House Conference section on handicapped, 1746—E; 1767—ME
CROCKETT-Arnett Clinic case, saving of tax on earned income, 43; 50
CROOKS, WILLIAM A., 419
CROSS-Infection: See Infection
CROUP: See also Diphtheria
  nostrum, Forkola Jell, 883—BI
  nostrum, Numoss, 952—BI
  nostrum, Sternox, 1038—BI
  nostrum, Vapomentha Salve, 1607—BI
CRUXITE, to protect eye from glare, [Coblentz] *593
CRYPTOCOCCI, perlèche of adults, [Skolnik] 1533—ab
CRYPTORCHID, bilateral, [Levin] 1699—ab
CRYSTAL analysis, international committee to prepare tables in, 122
CULLEN, THOMAS S., 1027
CULTS: See also Chiropractors; Chirothesians; Naturopathy; Osteopaths; Quackery; etc.
  dietary facts, fads and fancies, [Stone] *709
  eliminate food faddists from Indiana, 318
  unqualified practice cannot be suppressed in England, 544
CULTURE, diffusion of: origin of American culture, 945

CULTURE—Continued
  efforts of Hungary, 1601; 1603
CULTURE MEDIUM: See Streptococcus epidemicus; Tubercle Bacillus; etc.
CURETTAGE for hydatiform mole, [Sturgis] 78—ab
CURIE, Madame, enlargement of Radium Institute, 1275
  Marie Curie Radium Institute of Warsaw delayed, 542
CURRENCY: See Money
CURTICE Brothers Certified Nursery Foods, 486
CURTISS, H., 285—BI
CUSHING, HARVEY, honored, 1595
CUSTARD, cream, poisoning from, 940
CYANIDES: See also Acid, hydrocyanic
  dermatitis, in patient working in cyanide heat treating room, 1690
  gas, manslaughter due to carelessness with, 811
  poisoning, treatment, [Schmidt] 832—ab
  rash, so-called, in gold mine mill workers, [Braddock] 1377—ab
CYANOSIS, enterogenous, sulphemoglobinemia, [Harrop & Waterfield] ★647
CYST: See also Kidney; Ovary; etc.
  arachnoidal, [Nicolaysen] 978—ab
  dentigerous, of antrum of Highmore, [Harris] 1455—ab
  Dermoid: See Dermoid
  infected, of vagina, diagnosis, 66
  of bile duct, [Wilson] ★399
  of long bones of hand and foot, [Platt] 968—ab
  papillomatous, of breast, [Bevan] ★1312
  pituitary hormone in cystic mole, [Zondek] 1788—ab
  properitoneal, with ovarian fibroma, [Martzloff] 78—ab
  retroperitoneal thin-walled, [Brady] ★338
  scalpel surgery for, [MacKee & Stone] ★1317
  traumatic epithelial, ossified, on tip of tongue, [Pollack] 903—ab
  true blood, of neck, [Calzolari] 899—ab
CYSTECTOMY: See Bladder, excision
CYSTOCELES, cystoscopic appearance, [Van Duzen] 626—ab
CYSTOSCOPE: See Bladder
CYSTOSTOMY: See Bladder, surgery
CYTOLOGY, Second International Congress of, delegates, 281; 422
  new, 1759

D

DA COSTA Foundation: See Foundations
DACRYOCYSTITIS; dacryostenosis, treatment, [Kuhlefelt] 1060—ab
DAKIN'S SOLUTION: See Chlorinated Soda
DALEY, A. E., or Dr. John W. Nelson, 1688—BI
DAMAGES: See Medicolegal Abstracts at end of letter M
DARLEY-HARTLEY, WILLIAM, awarded gold medal, 1113
DATES, Dromedary Golden Dates, 1179
DATURA Stramonium: See Jimson Weed
DAVIS Inhalator acceptable, 200
DAWSON WILLIAMS Prize: See Prizes
DEAD BODIES: See Cadavers
DEAF, Central Institute for Deaf, given fund by General Education Board, 54
  vibratory electric current auditory apparatus to be used by, [Jellinek] 83—ab
DEAFNESS in meningococcic meningitis, [Smithburn & others] ★776
  paralysis of motor nerves of eye with, [Cornil] 1211—ab
DEATH: See also Cadavers, Cremation; Murder; Necropsies; Suicide; and "Deaths" at end of letter "D"
  cause of, from radium, [Larkin] 826—ab
  causes of, after gallbladder and duct operations, [Stanton] 295—ab
  causes of, England, 1681
  causes of, in diabetics, [Lyons] 969—ab
  causes of, in intestinal obstruction, [White] 229—ab; [Johnston] 368—ab; 414—E
  causes of, in jaundice, [Ivy] ★1068
  causes, postoperative deaths, [Petrén] 622—ab
  due to suffocation and primary complex with erosion of trachea, [Culotta] 456—ab
  during asthma attack, [Vallery-Radot] 560—ab
  mechanism of, due to cardiac syncope, 946
  of physicians, South Africa, 1441
  penalty, 672
  penalty, execution in state prison of R. H. White by hydrocyanic gas, [Hamer] ★661
  postoperative, in infants, [Riser] 972—ab
  Rate: See Infants, mortality; Maternal Mortality; Vital Statistics; etc.
  sudden, after bismuth tartrate intravenously, [Curtis] ★1588
  sudden, anatomic types of cardiac syphilis encountered in, [Martland] 439—ab
  sudden, in asthma, [Laubry] 971—ab
  sudden, of new-born infant during convalescence from erysipelas, [Lucca] 376—ab
  sudden, with brain cysts, [Knox] ★1813
DEBILITY and acidosis, [Osman] 969—ab
DE CASTRO, MANUEL, ★722; 730—E
DEER FLY, hosts of tularemia, 667—E
DEETJEN, CHRISTIAN, roentgen ray hero, 1185
DEFECATION: See Feces
DEFICIENCY Diseases: See also Beriberi; Pellagra; Rickets; Scurvy; Vitamins
  keratomalacia with, [Weech] 367—ab
  xerostomia, [Chamberlin] ★470
DEFIBRINATED Blood: See Blood
DEFINITIONS: See Terminology
DEFORMITIES: See also Abnormalities; Crippled
  consultation center for deformed persons, 282
  prevention in arthritis, [Osgood] ★993
  psychic attitute in relation to, 1604
DEGENERATION phenomena, in plants, producing, 142
  racial, 1844
DEGREES, baccalaurate, and medical graduates, ★505; 535—E
  court rules naturopaths cannot confer, 1513
  examinations for doctorate in medicine, 1439
  hospital intern year required for M. D., ★503; ★504
DEHYDRATION, cerebral, salt solution for, 1039
  treatment of epilepsy, [Fay] 232—ab; [Helmholz & Keith] ★708
DELAGENIÈRE, HENRI, death, 1436; 1758
DELAMAR LECTURES, Dr. M. Weinberg gives, 1353
DE LEE, JOSEPH B., gift to University of Chicago, 418
DELIRIUM, in bromide intoxication, [Harris & Hauser] ★94; [Wiedman] 1281—C; [Goldenberg] 1689—C; [Wagner] ★1725
  alcoholic, spinal drainage in, [Goldsmith] 1775—ab
DEMENTIA Paralytica: See also Paralysis, General, of Insane
  paralytica, juvenile, [Menninger] ★1499
DEMENTIA PRAECOX, galactose tolerance in, [Sleeper] 1292—ab
  narcosis in schizophrenia, [Bleckwenn] ★1169
  schizophrenia, menace in bodily diseases, [Wholey] ★1073
  treatment by lectures, [Lazell] 1130—ab
DENGUE and yellow fever, 1847
DENTAL education in Australia, 216
  clinic, Eastman, London, 1845
  clinic, Eastman, Stockholm, 1921
  hygiene, international exposition of, 1033
  Practice Acts: See Medicolegal Abstracts at end of letter M
  problems, research on, by Children's Fund, 1678
DENTIFRICE, testimonial by New York health commissioner, 1267—E; 1268—E
DENTISTRY: See also Medicolegal Abstracts at end of letter M
  disorders caused by electric current, [Lippmann] 1385—ab
DENTISTS, heart disease in, [Horine] 1129—ab
  losses from bad accounts, 602
  new mask that protects, [Mellinger] ★662
DENTURE, artificial, burning of roof of mouth from, 1366
DEO DENNIS Eucalyptus Ointment, 430—BI
DEODORANT, "In-No-Scent," 1525
DEPILATORY: See Hair removal
DEPOSITORY for serums, Breslau, 880
DERMATITIS, after arsphenamine, [Robinson] 966—ab
  after neoarsphenamine, 1196
  "berlock," 40—E; [Lane & Strauss] ★717
  calcium chloride a causative agent? 1198
  caused only by sense of heat or cold, [Duke] 293—ab
  "contact" testing, [Ramirez & Eller] ★1081; [Ramirez] 1455—ab
  endogenous eczematoid, from excess of fats and carbohydrates, [Ramirez & Eller] ★1083
  exfoliative, or scarlet fever, 1932
  from cyanide, 1690
  from cyanide in gold mine mill workers, [Braddock] 1377—ab
  from ephedrine in nasal spray, [Ramirez & Eller] ★1082
  from ethyl alcohol, [Ramirez & Eller] ★1082
  from insect powder (Black Flag), [Sulzberger & Weinberg] ★111
  from ragweed, [Ramirez & Eller] ★1082
  from rotogravure section of newspaper, [Ramirez & Eller] ★1082
  from soap, cleansing without irritation, 1525
  from toilet water, [Lane & Strauss] ★717
  from trinitrophenol, 1284
  mycotic, 1198
  paraphenylendiamine, from cosmetics, [MacKenna] 80—ab
  pyrethrum, from "Flit," [Ramirez & Eller] ★1082
  recurrent, not due to magnesium sulphate, 1447
  seborrheic, staphylococcus toxin in treatment of, [Weise] ★324; [Greenbaum & Harkins] 815—C; [Weise] 1607—C
  venenata, drug given by inhalation or an atomizer cause? 886
  venenata or lichen simplex, 145
DERMATOLOGY, state section on, Michigan, 1433
  International Congress of, 422
DERMATOLOGY—Continued
  intradermal, scratch, indirect and contact tests in, [Ramirez & Eller] ★1080
  phenol parenterally in, [Matusis] 296—ab
  roentgen rays and radium in, 279
  Società italiana di dermatologia e sifilografia, 279
  surgery in practice of, [MacKee & Stone] ★1315
DERMATOPHYTID complicating tinea cruris, [Williams] 1533—ab
DERMATOSES: See Skin disease
DERMATUBIN TEST, [Goldberg] 755—ab
DERMOID CYSTS, scalpel surgery for, [MacKee & Stone] ★1317
  ovarian, perforated into sigmoid, [Mayer] 1789—ab
DESENCIN for essential hypertension, [Ayman] ★247
DESENSITIZATION: See under Anaphylaxis
DEUTSCHE: See also German
  Gemeinschaft zur Erhaltung und Förderung [illegible]
  [illegible] und Stoffwech-
  Hygiene-Museum, 880
  orthopädische Gesellschaft, 1362
  pharmakologische Gesellschaft, 1114
  psychoanalytische Gesellschaft, 1520
DEVEL'S GRIPPE, 1281—BI
DEXTROSE by rectum and hypodermoclysis, absorption and blood sugar concentration, 146; 1283; 1525
  Ampoule Sterile Solution Dextrose, U.S.P., 5 Gm., 10 cc.; 10 Gm., 20 cc.; 25 Gm., 50 cc., 1589
  combustion vs. epinephrine secretion, 344—E
  compared with calcium for decreasing clotting time, [Ravdin] 369—ab
  Dextrose (d-Glucose) Unbuffered and Without Preservative, 25 Gm., 50 cc. Double End Vial, 1589
  Dextrose (d-Glucose) Unbuffered and Without Preservative, 10 Gm., 20 cc.; 25 Gm., 50 cc.; 50 Gm., 100 cc., Ampuls, 1589
  injection, intravenous, [Koster] 295—ab
  injection, intravenous, effect on Kupffer cells, [Koster] 370—ab
  intravenous infusion, anaphylactoid reaction, [Askey] 371—ab
  lactose and A maltose-dextrin preparation for infants, [Gerstley] ★1233
  solution cause of varicose veins slough, [Kilbourne] ★787
  solution (hypertonic) intravenously in medical shock, [Atchley] ★385
  solution intravenously in spinal block in meningitis, [Stookey & others] ★106
  solution, venoclysis, [Hendon] ★1175
  tolerance test of metabolic activity of liver, [Althausen] 1375—ab
  treatment of insulin hypoglycemia, [Popper] 1461—ab
  treatment of toxemias of pregnancy, [McConnell] 446—ab
  treatment (oral) with insulin in diabetes, [Pucsko] 633—ab
  treatment, vs. blood chlorine, [Ribadeau-Dumas] 1055—ab
  treatment with ammonia of asthma, 422
  treatment with insulin of cardiac insufficiency, [Loeper] 1948—ab; [Kisthinos] 1948—ab
  treatment with insulin of diphtheria, [Kostyal] 1787—ab
  treatment with insulin of hepatic complications, [Abrahamsen] 1060—ab
  treatment with insulin of morphinism, [Anton] 1386—ab
DIABETES, BRONZE: See Hemochromatosis
DIABETES INSIPIDUS, [Blina] 561—ab
  blood in, electrolyte composition, [Gradwohl] 1951—ab
  etiology, cranial trauma, [Bianchetti] 697—ab
  in pregnancy, [Anselmino] 1388—ab
  osteitis fibrosa polycystica and, [Sophian] ★483
DIABETES MELLITUS, acidosis, [Bayer] 77—ab
  acidosis, medical shock in, [Atchley] ★386
  blood circulation of feet in, [Starr] 891—ab
  blood circulatory disorders, [Black] 152—ab
  blood in, uricacidemia, [De Candia] 1300—ab
  blood sugar, arteriovenous difference, [Glassberg] 1939—ab
  blood sugar tolerance, fluctuation in, 1284
  Claude Bernard's theory of sugar center not substantiated, [Hiller] 459—ab
  coma, [Bowen] 227—ab
  coma, futility of alkali, [Lemann] 74—ab; 892—ab
  coma: prognosis and treatment, [Labbé] 970—ab
  complications, allergic disease, [Beckman] ★1583
  complications, arteriosclerosis in young patient, [Shepardson] 79—ab
  complications, carbuncle, [Villegas] 1301—ab; [Kocher] 1943—ab
  complications, coronary disease, [Blotner] 1618—ab

DIABETES MELLITUS—Continued
  complications, furunculosis in, staphylococcus toxin for, [Welse] ★324; [Greenbaum & Harkins] 815—C; [Welse] 1607—C
  complications, gangrene, surgery for, [Kocher] 1943—ab
  complications, lesions of lower extremities, [McKittrick] 1863—ab
  complications, neuritis with paralysis, [Root] 299—ab
  complications, pernicious anemia, [Arntzen] 382—ab
  complications, pernicious anemia, effect of liver extract, [Bowen] ★30
  complications, retinitis, blood calcium in, [Lawrence] 1701—ab
  complications, surgical, [Holten] 84—ab
  complications, tuberculosis, [Fitz] 891—ab; [Blum] 977—ab
  death in, causes, [Lyons] 969—ab
  diagnosis, [Leyton] 302—ab
  diagnosis, hyperglycemia of diabetes vs. that of chronic nephritis, 1118
  diet, [Fain] 1945—ab
  diet, fats in ketogenesis in, [Kalf-Kalif] 764—ab
  diet, high carbohydrate-low calory, [Rabinowitch] 1615—ab
  disappearance during liver cirrhosis, [Bordley] 1048—ab
  etiology, climate responsible factor in, [Mills] 1939—ab
  etiology, increased sugar consumption cause of? [Stone] ★711; 1917—E; [Mills] 1939—ab
  etiology, psychic or physical trauma, [Veil] 307—ab
  in children, [Bowen] ★567; [Acuna] 1873—ab
  in children, basal metabolism in, [Beck] 1786—ab
  in children, future, [White] ★1160
  in children: malformations, [Priesel] 829—ab
  in children, summer camp for, [Wendt] 232—ab
  in pregnancy, [Nevinny] 306—ab; 1366
  insulin in, economic status before and after, [Bowen] ★565
  insulin in, errors in application, [Labbé] 1539—ab
  insulin in, phosphate elimination in urine, [Gortz] 382—ab
  insulin in, tuberculosis in, [Blum] 977—ab
  insulin in, with surgical complications, [Holten] 84—ab
  insulin injections, atrophy of subcutaneous fat from, [Nichols] 445—ab
  insulin injections, distribution and blood sugar estimation, [Gottschalk] 379—ab
  insulin injections, lipodystrophy from, [Reed & others] ★395
  insulin injections, subcutaneous tissue changes after, [Eeg-Olofsson] 312—ab
  insulin intravenously, effect, [Nordsted] 312—ab; [Hess Thaysen] 461—ab
  insulin plus dextrose orally, [Pucsko] 633—ab
  insulin plus sodium desoxycholate given enterally, [van der Reis] 902—ab
  insulin reactions, local, [Lasersohn] ★199
  nonoxidation theory, 1508—E
  nostrum, Fulton's Compound, 745—BI
  nostrum, Sanovapor, 1365—BI
  obesity *and diabetes*, 202—E
  pancreatic, suprarenalectomy for, [Perrotti] 1460—ab
  patients, movement to aid, Germany, 1760
  patients, replies to Chicago Dietetic Supply Company *questionnaire* on use of manuals, diet, insulin, etc., [Duffie] 1688—C
  pituitary and, 1846
  surgical treatment, [von Stapelmohr] 638—ab
  theories, 344—E
  treatment, alcohol, 672
  treatment, ambulatory, [De Jong] 1703—ab
  treatment, economic results, [Bowen] ★565
  treatment, *iron*, [Henderson] 1616—ab
  treatment, *opium*, [Chopra] 1053—ab
DIABETES, RENAL, familial, [Constam] 830—ab
DIAGNOSIS: See *also* Consultation; Prognosis; under names of specific diseases
  bandage sign, 1110
  clinic at its best, 1179—ab
  clinic at its worst, 1095—ab
  clinical, [Billings] ★646
  differential, evaluation of increased spinal fluid *pressure*, [Mayer] 379—ab
  Head's zones as aids in, [Peterson] 1546—ab
  in pediatrics, [Morse] ★1645
  laboratories, cooperative, A.M.A. views on, 45
  laboratory, rôle of clinical pathologist, [Sanford] ★1465
  laboratory *tests*, 935
  mistaken, in accessory nasal sinus suppuration, [Uffenorde] 377—ab
  mistaken, in renal tuberculosis, [Martin] 1135—ab
  mistaken, in trichinosis, [Carter] ★1420
  mistaken, of appendicitis and renal disorders, [Walthard] 1783—ab
  mistaken, of pyloric and duodenal ulcers, [Cade] 1380—ab
  mistaken, of syphilis, 1277
  physical signs in neoplastic and other lung diseases, [Jackson] ★639
DIAGNOSIS—Continued
  physical, vs. *anatomic variations* [Mackmull] 1204—ab
  tests and signs, 550
  Turner's sign in pancreatitis, [Johnston] ★1587
  value of colloid reactions in spinal fluid, [Neel] 1464—ab
DIAPHRAGM, adhesions, [Head] 230—ab
  adhesions cause upper abdominal pain, [Hinton] ★1744
  gas under, roentgen significance, [Jenkinson] *1775—ab*
  Hernia: See Hernia
  Paralysis (Therapeutic): See also Nerves, *phrenicotomy*
  paralysis of hemidiaphragm, respiration after, [Head] 299—*ab*
  postoperative elevation, [Breuer] 1784—ab
DIAPHYSIS, fractures of femur, Muzü's reduction for, [illegible] —ab
DIARRHEA:
  after drinki
  Bacillus dys [Johnston] 967—ab
  bloody, psychogenic factors in etiology, [Murray] 891—ab
  Giardia intestinalis in North China, [Tao] 1538—ab
  hydrochloric acid and, [Emery] 1699—ab
  in infants, dietetic treatment, [Moll] 1056—ab
DIASTASE, determination, [Bernhard] 1217—ab
DIATHERMY burns, device for protection against, [Kowarschik] 170—ab
  electrocoagulation for small fistulas of bladder, [Ottow] 381—ab
  electrocoagulation for vesicocervical fistula, [Gottlieb] 381—ab
  electrocoagulation in brain surgery [Olivecrona] 832—ab
  in gynecology, [Büben] 1625—ab
  knife for treatment of breast cancer, [Warwick] 454—ab
  of rectum and pelvic colon, [Soper] 299—ab
  of testis and epididymis: technic, [Kowarschik] 311—ab
  research in, General Electric X-Ray Corporation gift for, to University of Chicago, 418
  surgical, and electrocoagulation for removing advanced malignant tumors, [von Seemen] 240—ab
  surgical, experiences, [Kirschner] 167—ab
  surgical, for bladder cancer, [Kretschmer) ★1728; [Smith] ★1730; [Boeckel] 1870—ab
  surgical, for malignant tumors of bladder, [Stutzin] 1545—ab
  surgical, for wounds, [Spitzmüller] 1305—ab
  surgical, special communications, 1517
  treatment of anal fissure and spasm, [Howitt] 453—ab
  treatment of essential hypertension, [Ayman] ★247
  treatment of gynecologic conditions, [von Büben] 311—ab
  treatment of myelitis, [Osterreicher] 1785—ab
DICHLORETHYL-SULPHIDE: See diChlorethyl-Sulphide
DICK TEST: See Puerperal Infection; Scarlet Fever
DICKINSON technic of sterilization, 1854
DIEMER'S Laxative Grip and Cold Tablets, 1281—BI
DIET: See also Appetite; Feeding; Food; Nutrition; Vitamins; etc.
  acid, for asthma, [Tiefensee] 1462—ab
  alkaline, effect on storage of mercury in body, (correction) 56
  basic, for chronic arthritis, [Snyder] 1378—ab
  calcium in, [Stone] ★713
  copper in, [Stone] ★713
  correction of obesity, [Strang] 77—ab
  deficiency, incipient, in child, 1759
  deficient, cause of xerostomia, [Chamberlin] ★470
  deficient, experiments on rats with, [Gudjonsson] 1464—ab
  dental caries and, 1915—E
  Diabetic: See Diabetes Mellitus
  dry, McCollum balanced, for laboratory albino rat, 1039
  dry, vs. inoculation tumor growth, [Ottensooser] 1788—ab
  eat and grow fat, 1182—E; 1507—E
  eat and stay thin, 1182—E
  effect of special breakfast on basal metabolism, [Wang] 1128—ab
  effect on bone regeneration, [Mondry] 1543—ab
  effect on growth of fibroblasts, 1183—E
  facts, fads and fancies, [Stone] ★709
  Fat in: See Fat
  for guinea-pig, 1609
  Gerson: See also Larynx, tuberculosis; Skin, tuberculosis; Tuberculosis, treatment; Tuberculosis, Pulmonary, treatment
  Gersón and Herrmannsdorfer, differences, [Herrmannsdorfer] 170—ab
  Gerson, effect on wound healing, [Schade] 311—ab
  in gallbladder diseases, [Einhorn] 1295—ab
  in gout, [Stone] ★712
  in metabolic disorders, [Levy) 1296—ab
  iron in, [Stone] ★713
  Ketogenic: See also Epilepsy
DIET—Continued
  ketogenic, in allergic conditions, [Beckman] ★1582
  ketogenic, in migraine, [Barborka] ★1825
  ketogenic, pellagra-like skin lesions from, [Greer] ★863; [Guthrie] ★1912
  magnesium, sodium and potassium in, [Stone] ★713
  meat diet a menace? 866—E; [Falcon-Lesses] 1445—C; [Willi] 1627—ab; [Moulton] 1762—C
  mixed, and vegetable, nutrition of children on, [Lane] 1126—ab
  model, for pregnant women, Italian commission to compile, 60
  National Health League scheme, 144—BI
  of patients in health resorts, 62
  of young students, 212
  olive oil in, of acetonemic children, [Sainz de los Terreros] 1782—ab
  phosphorus in, [Stone] ★713
  proper, for patients, 1603
  Protein in: See Protein
  raw vegetable, effects, [Willi] 1627—ab
  relation to effects of large amounts of roentgen rays on organism, [Jorstad] 757—ab
  response of monkey to withdrawal of vitamin A *from*, [Tilden] 1456—ab
  restrictions with mild mercurous chloride (calomel), 1282
  Salt Free: See Salt
  search for health, 1429—E
  Therapeutic: See also Diabetes Mellitus; Diarrhea; Epilepsy; Nephritis; Peptic Ulcer; Skin, tuberculosis; Sprue; Tuberculosis, treatment; Tuberculosis, Pulmonary, treatment
  therapeutic, effect on stomach and duodenal acidity, [Mann & Bollman] ★1723
  vegetarian, vs. blood pressure, [Salle] 902—ab
DIETRICH, EDUARD, honored, 1604
DIGESTION: See also Dyspepsia
  alcohol formation during, 615; 1119
  at 28,150 feet above sea level, 1030
  colibacillurias of digestive origin, [Jahiel] 1782—ab
  disorder from artificial pneumothorax, [Bonafé] 1702—ab
  disorders from duodenum and colon malformations, [Peigneaux] 81—ab
  German Society of Diseases of, 1601; 1603
  leukocyte count low during, [Loeper] 1135—ab
  of various foods and under various conditions, [Childrey] 1374—ab
  perivisceritis, gastroduodenal hemorrhages in, [Chiray] 1135—ab
DIGESTIVE TRACT: See also Gastro-Intestinal Tract
  cancer, [Friedenwald] ★909
  changes of form and position, *especially* ptosis, 1601
  inflammation, 1601; 1603
  origin of Krukenberg's tumor, *[Babes] 1134*—ab
  respiration effect on, [Prone] 455—ab
  stenosis, congenital, [Becking] 1140—ab
  tuberculosis, 1032
DIGIFOLINE, intravenously, [Hendon] ★1175
DIGITALIS, effect, circulatory, [Tainter] 448—*ab*
  hepatic vein reactions in circulatory correlations as exemplified *by effects of, 868—E*
  in ambulatory cardiac patients, [Gold & DeGraff] ★1237
  intravenously effect in paroxysmal tachycardia of supraventricular origin, [Wilson] 443—ab
  treatment in pneumonia, [Wyckoff & others] ★1243; [Niles] 1289—ab
  treatment of auricular fibrillation, Stokes-Adams syndrome from, [Hewer] 694—ab
DILLEHUNT, RICHARD B., resigns from A.M.A. Council on Physical Therapy, 1676
DIONOL nostrum, 1281—BI
DIOSPYRI virginianae, phytobezoar, [Cole] 156—ab
DIPHTHERIA: See also Croup
  antiserum, variations in efficacy, 1358
  antitoxin in, 1040
  antitoxin injection, fatal human anaphylactic shock after, *[Bullowa] 1128—ab*
  bacilli, copper sulphate tellurite medium *for*, [Allison] 1297—ab
  bacillus, Pyridium, 31
  before and after tonsillectomy, [Kaiser] ★838
  blood in, Arneth and Schilling formulas *in*, [Nervi] 1383—ab
  "carrier," can a person who is "Schick negative" be one? 288
  cause of late heart block, [Butler] 413—ab
  diagnosis, [Zahorsky] 150—ab
  disability in, degree, 1521
  epidemics in orphanages, combating, *[Jensen]* 978—ab
  epidemics, milk-borne, in rural areas, 1598
  hospital unnecessary, Philadelphia, 735
  immunity, 66
  immunization, [Bie] 978—ab; [Monrod] 957—ab; 1761; 1926
  immunization, active, with T A F, [Nassau] 307—ab

DIPHTHERIA—Continued
  immunization in Australia, 1518
  immunization in French army, 808
  immunization of 4,000 children, [Grosskopf] 634—ab
  immunization of new-born and nurslings against, [Schwarz] 1871—ab
  immunization of student nurses against, [Bie] 978—ab
  immunization (percutaneous) with toxoid, [Schmidt] 978—ab
  immunization with Löwenstein's ointment, [Siegl] 1787—ab
  incidence, decreases, Arkansas, 1104
  incidence, much less, New York City, 1028
  insoluble precipitates in, [Glenny] 1131—ab
  laryngitis, [Richards] ★768
  mortality in large cities of U. S., (correction) 209
  of umbilicus, [Montgomery] 1995—ab
  paralysis, serotherapy, [Friedemann] 1998—ab
  prevention, [Bleyer] 150—ab
  regulations pertaining to, Prussia, 743
  therapeutic effect on epilepsy, [Guthrie] 1534—ab
  throat cultures in, not same as cough plate method in whooping cough, [Saure & Hambrecht] ★263
  toxin-antitoxin, Diphtheria Toxin-Antitoxin Mixture (Diphtheria Prophylactic), 1913
  Toxoid: See Diphtheria immunization
  toxoid; Diphtheria Toxoid, 1505; 1913
  toxoid; Diphtheria Toxoid-Cutter, 485
  toxoid; Diphtheria Toxoid-Squibb, 1913
  treatment, convalescent serum, [Hentschel] 1786—ab
  treatment, insulin-dextrose, [Kostyal] 1787—ab
  treatment of malignant form, [Kundratitz] 1462—ab
  treatment, transfusion in, [Landon] 1531—ab
DIPHTHERIODS transformed into other organisms, 1590—E
DIPHYLLOBOTHRIUM latum: See Tapeworm, broad
DIPLEGIA, facial, after antirabic treatment, [Marque] 166—ab
DIPLOMAS: See also Licensure
  Damaso Tumaneng Samonte, lost, 871
  Mills: See Licensure
DIRECTORY: See also American Medical Directory
  biographical, AMERICAN PHYSICIANS AND SURGEONS, 614
  biographical, $50 for your biography in print, 209
DIRT: See also Dust
  perverted appetite, or pica, 287
DISABILITY: See also under Workmen's Compensation Acts; and under Medicolegal Abstracts at end of letter M
  degree in infectious diseases, 1521
  degree in skin diseases, 1521
  disabling back pain, [Schauffler] ★1717
  rehabilitation, of disabled, [Mock] ★31
  period of, arbitrary, [Kahn] 227—ab
DISCIPLINE, proper preparation of charges and appeals, 46
DISCOVERIES, scientific, ownership of Medical patents, 211; 213; 276; 484; 543
DISEASE: See also Death; Diagnosis; Disability; Medical Service; Patient; Prognosis; Therapeutics; and under Medicolegal Abstracts at end of letter M
  acute, chlorination and alkalization, [Achard] 1782—ab
  are the fourth, fifth and six diseases disease entities? [Rietschel] 82—ab
  Carriers: See also Diphtheria; Typhoid; etc.
  carriers, law regarding, Turkey, 677
  disastrous, 1034
  emotional life and, 486—ab
  groups, classification of man into, 91—ab
  hygiene of towel, [Pease] 1047—ab
  in aged, [Guyot] 154—ab
  interferential theory of treatment of, 1113
  investigated at Rockefeller Institute, 942
  light as a defense against, 1363
  menace of mental factors in, [Wholey] ★1073
  National Conference on Nomenclature of, 1752
  prevention and free outdoor movies, 207
  psychic processes significance in, 1683
  reportable, public health law, Turkey, 677
  reportable, trichinosis, New York, 1354
  resistance to, vs. vitamin A, 798—E
  Schilling's hemogram in, [Gazzotti] 1036—ab
  synovial fluid in health and, [Forkner] 1378—ab
  typhus-like, 869—E
  use of common compounds of carbon in, [McDowall] 827—ab
DISINFECTANTS: See also Antiseptics; Germicides
  comparative study, [Birkhaug] ★917
  skin, metaphen, [White & Hill] ★27; [Birkhaug] ★917
DISINFECTION: See also Fumigation; Sterilization, Surgical
  of linens after pulmonary tuberculosis, 146
  of skin, Grossich's method, [Curri] 1138—ab
DISK, Choked: See Nerve, optic
DISLOCATION: See also Hip Joint; Knee; Shoulder
  treatment, regional anesthesia in, [Highsmith] 1129—ab
DISPENSARY: See also Clinics
  for University City, 607
DISTOMAS, surgical diseases of bile tract from, [Finkelstein] 829—ab
DISULPHAMIN, 1689
DIURESIS, attempt to reintroduce viper as medicament, 212
  to control of barbital anesthesia and poisoning, [Johnson & others] ★576
DIURETIN-rhodan-calcium for essential hypertension, [Ayman] ★247
DIVERTICULUM: See also *Duodenum*; Esophagus; Intestines; Stomach
  congenital, [Becking] 1140—ab
  congenital, of heart, [Mahrburg] 635—ab
DIZZINESS: See Vertigo
DOAN, CHARLES A 274
DOCTORS: See also Physicians
  masseurs and title of "doctor," 540
DÖDERLEIN, ALBERT, honored, 428; 677
DOGS, cardiac valvular disease in, vs. in man, [Powers] 623—ab
  infected, increase of rabies, 416
  motor area in, [Michaels] 297—ab
  spaying of, 748
  tapeworm in, [Vergeer] ★1579
  tick, typhus-like diseases, 869—E
DOLICHOSIGMOID: See Sigmoid
DONATIONS and bequests, 136; 805
DONNELL'S Indian Vegetable Oil, 745—BI
DONORS: See Blood Transfusion
DORAN, JOHN E., fined, 1843
DORMITORY, for University City, 607
DOSAGE: See Gold sodium thiosulphate; Iodine; Roentgenotherapy; Ultraviolet Rays; Viosterol; etc.
DOUCHE, nostrum, Madame X Douche Tablets, 814—BI
  vaginal, alphanaphthol, 34
DOUGHERTY, DANIEL S., *honored*, 1679
DOUGLAS POUCH abscess, [Nicolini] 305—ab
  echinococcus cyst simulating prostatic tumor, [Battista] 305—ab
DOUGLASS, GEORGE R., 814—BI
DOULL, JAMES ANGUS, 54; 1271
DOYNE Memorial Lecture, 805
DRAINAGE: See also Cerebrospinal Fluid; *Empyema; Gallbladder; Liver; etc.*
  continuous siphon system for, [Pottenger] ★1670
  internal, [Faulkner] ★1325
DRAMA: See Motion Pictures
DRAPER, GEORGE, work on human constitution, [Friedenwald] ★905
DREAMS of tuberculosis patients, [Hoke] 1629—ab
DRESS· See Clothing
DRESSINGS, *bandage sign*, 1110
  commercial bandage material, bacterial content, [Konrich] 828—ab
  exsiccated alum, for fractures and joint diseases, [Benatull] 1301—ab
  paste bandage for varicose ulcers, [Cellan-Jones] 1701—ab
  role of bandage in determining site of inflammatory focus in bone, [Kusmin] 900—ab
  wound healing under adhesive plaster bandage, [Dabasi] 1543—ab
DRINKER respirator, [Murphy & Coyne] ★335; [Drinker & others] ★1249; 1513
DRIVERS: See Automobile
DROMEDARY Golden Dates (Pitted and Plain), 1179
DROPSY: See also Ascites; Edema
  renal, Dr. James' treatment for, 1688—BI
DROUGHT, health menaced by, Kentucky, 601
  stricken cities ask aid, Ohio, 1922
DROWNING, Drinker respirator in, [Drinker & others] ★1251
  first aid for drowned persons, [Thiel] 377—ab
DRUG STORES: See *Pharmacy*
DRUGGISTS: See Pharmacists
DRUGS: See also Narcotics; Nostrum; Pharmacology; Pharmacopeia; Proprietaries; etc.; and under Medicolegal Abstracts at end of M
  absorption from right ventricular cavity, [Wiggers] 625—ab
  can a drug given by inhalation or an atomizer cause dermatitis venenata? 886
  Eruption: See Arsphenamine; Neoarsphenamine
  groceries (etc.) selling, 1842
  idiosyncrasy to, 432
  legislation regarding, Roumania, 1113
  new remedies, [Christian] 373—ab; [Edmunds] ★383
  oxytocic actions, 682
  poisoning, Drinker respirator in, [Drinker & others] ★1251
  standardization, India, 1436
  use, *in atrophic* arthritis, [Young] 1378—ab
  useless druging in pneumonia, [Bethea] ★925
  value of *alcohol* as, 672
DRUNKENNESS: See Alcoholism; Medicolegal Abstracts at end of letter M
DRY CLEANER, iritis in, 551
DUBOUÉ, DR., honored, 1189
DUCTLESS GLANDS: See Endocrines
DUCTUS ARTERIOSUS, normal closing time, [*Christie*] 1126—ab
DUCTUS CHOLEDOCHUS: See Bile Ducts
DUELING, rapier, and surgery, 216; 598—E
DUFORT, J. E., sentenced, 1353
DUGDALE, FREDERICK, loses suit against Lowell *Sun*, 1523—BI
DUISBERG and Willstaedter introduced Avertin, 1427
DUKE'S DISEASE: See Fourth Disease
DUKE UNIVERSITY *opens hospital*, 541
DUKE-ELDER, WILLIAM STEWART, to lecture at Harvard, 1678
DUNHAM LECTURES, Dr. Knoop gives, 1027
DUODENITIS: See Duodenum, inflammation
DUODENUM anomalies causing severe digestive dis [illegible]
  anom [illegible] —ab
  conte [illegible] [Mann & [illegible]
  diverticulum, clinical aspects, [Albrecht] 1951—ab
  exclusion, biologic attenuation of intestinal microbism in, [Badile] 457—ab
  Fistula: See Fistula
  hemorrhages in digestive perivisceritis, [Chiray] 1135—ab
  inflammation and ulcer, [Nickel] 227—ab
  inflammation, phlegmonous, [Hjort] 1060—ab
  injury, subcutaneous, in baseball player, [Schmorell] 1218—ab
  insular hormone in, [Laughton] 1377—ab
  Perforation: See also Peptic Ulcer, perforated
  perforation by fishbone, [Douglas] ★265
  perforation in aviator while flying, 1599
  sarcoma, primary, [Soli] 1871—ab
  stenosis, recurrent vomiting due to, [Marfan] 898—ab; [Camera] 1781—ab
  surgery, duodenal fistula after, [Moulonguet] 1055—ab
  syphilitic ulcers, 615
  tuberculosis, 1032; [Garvin] ★1418
  Ulcer: See Peptic Ulcer
DUPUYTREN'S Contracture: See Muscles
DURA MATER, subacute combined sclerosis, [Delehanty] 230—ab
DUST: See also Dirt
  coal, occupational cancer, 611
  coal, *tuberculosis and anthracosis, 1033*
  extracts, diagnosis and treatment of asthma, 1610
  inhalation and iron ore mining, [Collis] 1377—ab
  lime, soreness of lungs from industrial exposure to, 67
  pneumonoconiosis or pulmonary hemorrhage in mixer of talcum powder, 684
  pulmonary disease and, [Russell] ★1714
DUSTING POWDER: See also Talcum
  for poison ivy intoxication, [Lamson] ★663; [*Stevens*] 1762—C
DUTY: See Tariff
DYES: See also Brilliant Green; Congo Red; Mercurochrome; Methyl Violet; Neutral Red; *Thionin*; etc.
  effect on Monilia tropicalis, [Lim] 629—ab
  effect on virus of chicken tumor, [Lewis] 753—ab
  gradient of capillary permeability, 938
  hair, [MacKenna] 80—ab
  shoe, poisoning from, 739
DYSENTERY: See also Diarrhea
  Amebic: See also Endameblasis
  amebic, [Chisholm] 624—ab
  amebic, [illegible]
  amebic: [illegible] ab
  amebic, [illegible] in, [Leibly] 368—ab
  bacillary, endemic, in Aberdeen [Cookson] 303—ab
  Bacillus dysenteriae Sonne, *fatal epidemic* enteritis from, [Hay] 162—ab
  Bacillus dysenteriae Sonne infections, [Johnston] 967—ab
  bacillus, *Kruse-Sonne's paradysenteric bacillus, 609*
  epidemics, milk-borne, in rural areas, 1598
DYSGEUSIA, complicating, influenza, [Crämer] 902—ab
DYSMENORRHEA, [Miller] ★1796
  in endometriosis, [*Keene & Kimbrough*] ★1165
  treatment, blood of pregnant woman; follicular fluid, [Maurizio] 828—ab
  treatment, pelvic irradiation, [Findley] ★857
DYSPEPSIA, functional, gastric pain in, [Oury] 1054—ab
  nervous indigestion, [Friedenwald] ★908
  nostrum, Gasidal, 1194—BI
DYSPNEA: See also Asthma
  in athletes, [Joki] 700—ab
  syphilis *of heart and great* vessels, [Coombs] 969—ab
DYSTOCIA: See Labor
DYSTONIA, distal unipolar electrical stimulation *in*, [*Néri*] 1948—ab
DYSTROPHY: See also Atrophy; Lipodystrophy
  fibrous osteodystrophy in hyperparathyroidism, dogs, [Jaffe] 1941—ab
  genitodystrophic *geroderma*, [*Bardisian*] 899—ab
  muscular, progressive, epinephrine and pilocarpine for, [Kuré] 901—ab

DEATHS

A

Abbott, Clifford John, 1850
Adair, Charles H., 218
Adams, Daniel C., 744
Adams, William MacDonald, 1687
Addison, William Lockwood Thornton, 1852
Aisman, Alexander, 1036
Aitken, James Francis, 880
Ake, Nicholas F. Kelley, 1987
Albers, Herman Harvey, 1929
Albert, Charles Walker, 1755
Alderton, Henry Arnold, 1521
Aldrich, Daniel B., 143
Aldrich, James L., 429
Aldrich, Walton Herman, 678
Alexander, Emory Graham, 1035
Alexander, Hugh Samuel, 881
Allan, Edward, 1852
Allen, Charles Isham, 143
Allen, George D., 1852
Alton, Robert W., 1929
Ambler, Alfred Silas, 881
Ames, James Sidney, 1987
Amyx, William Thomas, 1987
Anderson, David Bruce, 1522
Anderson, James Alexander, 1686
Anderson, Jesse Munroe, 1605
Andrews, Norman William, 1279
Andrews, Robert Boyd, 1364
Ansbacher, Samuel L., 612
Anthony, Richard Selden, 142
Armstrong, Joseph Creath, 611
Arn, Gottfried, 813
Arnold, James M., 1036
Auger, Adolphe Alphonse, 881
Auger, L. Narcisse, 813
Austin, George M., 1756
Auxford, Frank O., 284
Avery, Claude A., 1280
Axenfeld, Theodor, 676
Aycock, John Franklin, 284
Ayres, Edward C., 1036

B

Babcock, Robert Hall, 142
Bacon, Charles Bowman, 1987
Bacot, Peter R., 1987
Badner, Jesse, 1850
Bahrenburg, William Nast, 813
Bailey, Edwin C., 143
Baird, David, Jr., 1851
Baker, Charles William, 1280
Baker, George Emerson, 284
Baker, Virgil A., 1756
Ballaine, Charles Wesley, 813
Baldwin, Aristides Edwin, 283
Bannister, Lucy A., 1115
Barber, Adelia Bentley, 1852
Bard, Isaac Walter, 1930
Baright, Julia Stringham, 1115
Barkdoll, Frank Leslie, 1756
Barker, C. T., 1687
Barlow, Martin Johnston, 428
Barlow, Nathan, 1755
Barnes, John A., 1987
Barranco, Marco Antonio, 358
Barton, George Chillcote, 218
Barton, Robert Selmo, 1987
Barton, William Peyton, 1115
Basham, James Woodie, 881
Bassett, Merritt G., 881
Bassman, Abraham, 1687
Bateman, Francis James, 1115
Bates, Jack M., 881
Bates, Joel, 143
Bates, Lucius B., 1036
Bates, William Henry, 1687
Baugh, Craig J., 359
Baughman, Isaac J., 359
Baylor, George W., 218
Beach, William Mulholland, 1686
Beadle, Helen A., 284
Beaulieu, Francis Xavier, 1115
Beckwith, John Tifft, 1756
Beckwith, Sidney Anson, 950
Beebe, Charles H., 429
Beers, Henry S., 1364
Beins, Herbert F., 429
Bell, Luther W., 1364
Bell, Samuel Thomas, 1850
Bellows, William Samuel, 358
Benedict, Walter G., 881
Benjamin, Dowling, 1852
Bennett, Benjamin Franklin, 679
Bennett, Joseph Martin, 1929
Bennett, Robert Marvin, 1930
Benson, James John, 1929
Benson, John Paul, 1363
Berger, Bertha Dalrymple, 218
Bergstein, Henry, 1687
Berkheiser, Arthur John, 881
Bernard, Adelheim, 1687
Berry, Edgar Vernon, 744
Best, Elmer Ellsworth, 1443
Betz, Isidor, 429
Bevington, Elwood Ebert, 359
Beyer, Anton John, 744
Bibby, Lowe H., 143
Bigler, Charles Albert, Jr., 1521
Billick, Harvey T., 1605
Birney, Israel P., 1852
Bishop, Frank Gerald, 1929
Bissell, Nelson Clifton, 1930
Black, Jacob Sidney, 881
Black, John Simpson, 429
Black, Robert Creswell, 1522
Blackman, Francis Homer, 1930
Blackshear, William Royal, 1930
Blair, J. M., 1280
Blake, William Ford, 1686
Blanchard, George Lake, 1930
Blanford, David I., 881
Blanks, Charles Lee, 1686
Bloom, Oscar Edwin, 881
Blount, Robley Dunglison, 1930
Boarman, Jerome Augusta, 1687
Boatner, Franklin Pierce, 1930
Boehm, Robert Gustav, 1522
Boehmer, George H., 1930
Bolton, Robert, 284
Bond, George Whitefield, 612
Bond, Thomas W., 284
Bonner, James Claud, 813
Booth, William T., 1930
Borden, Davis P., 1851
Bottorf, Daniel W., 1364
Bowen, Edwin Stratton, 143
Bower, Raymond Jacob, 1193
Bowers, Austin L., 679
Bowles, Samuel Addison, 1852
Bowling, James Abraham, 358
Bowman, Fred Raymond, 284
Bowman, William B., 1605
Boyce, John Welch, 1929
Boyer, John Stanley, 1987
Boyd, Isaac N., 1852
Bradshaw, Althea Edmund, 1522
Brainerd, Walter Scott, 1930
Brannon, Wade Hampton, 1035
Bren, Mordecai Robert, 218
Breneman, Joseph T., 143
Brennan, Jeremiah Francis, 1036
Brower, Earl Lane, 611
Briard, William Henry, 284
Brickner, Walter M., 611
Bright, Neil Alden, 358
Brittin, Albert Leslie, 429
Brock, Leonidas Gardner, 1987
Brodbeck, John R., 813
Brodhead, Charles Wessales, 1364
Brooks, Robert Horace, 881
Brooks, William Frederick, 1522
Brough, Frank Thomson, 1193
Brown, Edmund Towle, 611
Brown, Elmer Ellsworth, 1851
Brown, Isaac Z., 950
Brown, John Thomas, 744
Brown, Pugh Ulpian, 1929
Brown, Richard Mark, 1521
Brown, Stowell Nelson, 813
Bruner, Henry G., 218
Brush, Edmund Cone, 950
Bryant, Arthur H., 218
Bryar, Fred Elmer, 1850
Buckley, James Joseph, 1987
Buehler, Eugene, 950
Bulette, Clarence Eugene, 1279
Bullard, William Ebenezer, 358
Bundy, Joseph Edward, 1930
Burckhalter, Walter M., 881
Burket, Robert Smith, 1687
Burkholder, John Lewis, 358
Burns, Reed, 1193
Burr, Rollin T., 284
Burrows, Francis Austin, 612
Burrows, Fred Grant, 218
Burrows, Thomas Wilson, 1445
Burton, James J., 143
Bush, William Allen, 1522
Buskirk, John D., 678
Buskirk, Thomas C., 549
Butler, Thomas Parker, 359
Butler, William James, 429
Butman, Emma H., 1852
Buxton, Albert J., 612
Byars, James, 1687
Byrd, Hiram, 1036

C

Caldwell, Albert Francis, Jr., 678
Caldwell, Charles Peter, 283
Callender, Cyrus Newton, 880
Callender, John Anthon, 1280
Calloway, Wiley Wert, 429
Campbell, Archibald Murray, 950
Campbell, Christopher A., 950
Campbell, Dundas Ralph, 813
Cantrell, Charles Albert, 1687
Carl, Isaac Daniel, 143
Carlisle, Samuel Oscar, 812
Carlyle, Luther P., 218
Carpenter, Jefferson D., 744
Carrico, Mary Leola, 1930
Carroll, John Valentine, 63
Carson, Herbert William, 1031
Carter, Henry, 1193
Carter, James Thomas, 1522
Carter, Jesse Garvin, 679
Cartin, Henry James, 1852
Carver, James Clayton, 143
Casenburg, William Grant, 1687
Cashman, Elmer W., 1364
Caskie, James M., 1851
Castlio, Mitchell, 881
Cauble, Harold Hartley, 1987
Ceconi, John Aloysius, 1363
Chadwick, P. C., 1930
'homson, 1850
., 1756
930
lerson, 1443
'9
036
is, 1852
1930
Ienry, 549
1
1115
1522
Chritzman, Harry B., 1115
Clark, John Albert, 612
Clark, John Baptist, 429
Clark, Prosser Elwin, 1756
Clark, William Blair, 1193
Claussen, Julius Edward, 1851
Clement, Webster J, 143
Clement, William Richard, 143
Cody, William Stephen, 359
Coerr, Frederic D. Huntington, 1521
Cogswell, Fred A., 1987
Cohn, Louis, 950
Coiner, Norval Letcher, 549
Cole, George E., 813
Coleman, Henry Hinman, 1756
Coleman, Joseph Ira, 1756
Coleman, Louis M., 1687
Colin, William, 1929
Colley, Mack M., 1687
Collins, Charles Melvin, 61
Collins, George, 143
Collison, John, 1115
Comfort, Francis S., 1036
Comings, Frederick William, 1364
Commorato, John Ralph, 1987
Comstock, Alfred Erwin, 744
Conibear, Laura Viola Gustin, 1850
Conn, Walter S., 218
Conroy, Francis James, 1930
Conway, Michael P., 359
Cook, Edward, 1364
Cook, Henry H., 1987
Cook, John S., 1852
Cooke, Thomas Russell, 1115
Cooper, Francis M., 549
Cope, George Harold, 358
Corbin, Harold Hunter, 358
Corn, Jasper, 1852
Corn, Nathaniel, 1851
Corson, Orrillus Melville, 429
Cosby, George Otto, 1929
Cossitt, Harry Austin, 358
Coughlin, John Henry, 1686
Cowan, Conley Mahlon, 1987
Cowden, Ernest J., 218
Cox, Mattie Estella, 1687
Coyle, Robert, 1193
Craig, William Bedford, 1929
Crane, Augustin Averill, 428
Crawford, John Wesley, 218
Crawford, Luther F., 1443
Crawford, Norbert P., 1852
Crawford, Robert Lee, 1364
Criss, John Davis, 1851
Critchfield, John Sherman, 283
Croft, Benjamin Pomeroy, 63
Crokat, Edward A., 1929
Crute, Charles Bledsoe, 1686
Cullen, James Augustine, 549
Culler, Robert Martin, 1987
Cullison, Corey Barton, 1852
Culpepper, Sefron C., 1280
Cummins, John S., 1280
Cunningham, Alexander A., 1755
Cunningham, Henry Mortimer, 1850
Cunningham, Samuel Preston, 1193
Currier, Jonathan, 1755
Curry, Charles S., 1756
Curry, Thomas F., 679
Curtis, Henry Fuller, 1929
Curtis, Jacob M., 143
Curtis, Lester, 1755
Curtis, W. M., 1687
Cutler, Condict Walker, 428
Cyr, Ernest George, 612

D

Dale, Frederick T., 881
Darling, Sumner E., 1193
Darrow, John Allison, 1930
Davey, James R., 1115
Davies, William John, 881
Davis, Asa Barnes, 1035
Davis, David, 549
Davis, John Hall, 284
Davis, John Quincy, 744
Davis, Manley Alfred, 1929
Davis, Maxwell J., 1930
Davis, Royse, 1756
Davis, William Herschel, 881
Davis, William J., 1443
Day, George E., 679
Deacon, John Dunlap, 813
Dean, Carter Braxton, 1115
Dean, Hollis Goodell, 1443
Deatherage, Samuel Gayle, 1279
De Beque, Wallace A. E., 1852
Decker, Frank Albert, 1687
De Forest, Calvert Martin, 679
Delageniere, Henri, 1436, 1758
Delahunt, Joseph, 1930
Delatour, Henry Beeckman, 880
De Lespinasse, Adolph Frederick Henry, 63
De Lorme, Murrett Fauquier, 1193
Dennis, David Nichols, 1605
Denton, Edward, 359
Deshon, Roberto, 429
Devine, Frederick Raymond, 1036
Dey, Charles Livingstone, 284
Dickens, Jeff H., 429
Dibble, Le Roy, 1036
Dicken, Hugh William, 1755
Dickinson, Gordon Kimball, 283
Dietrich, Lewis Samuel, 1522
Dinegar, Robert Henry, 744
Dinsmore, James W., 1036
Disen, Charles Frederick, 1036
Divver, R. Furman, 1364
Dodds, Aaron Miller, 549
Dodson, James Riley, 679
Donehoo, Robert Shields, 549
Dooley, Edward Augustine, Jr., 549
Dorland, Clareld Edison, 1280
Dornblaser, Thomas Franklin, 1522
Dougherty-Trexler, Henrietta Matilda, 744
Douglass, Curry F., 1756
Douglass, James Wallace, 549
Dowd, Ralph Parker, 1443
Downer, Abner George, 1756
Drake, Dean Spencer, 1443
Drake, Frank I., 429
Dretzka, Leo John, 1605
Drohan, James Henry, 218
Drowne, Frederick Peabody, 358
Dryden, Robert Craig, 218
Du Bois, Henry K., 1364
Duchein, Charles Francis, 1930
Duchscherer, Clarence Christopher, 1930
Ducommon, Mark J., 143
Duncan, Julius Edgar, 1115
Dunham, Isaac S., 744
Dunham, Ora Berton, 143
Dunlop, John W., 1756
Durrum, James C., 950
Dyer, Charles Ewing, 744

E

Eakman, William Sylvester, 283
Ebel, Joseph Anthony, 1687
Eberlein, Edwin William, 1687
Eberts, Harold Francis Hope, 1929
Edgington, Benjamin F., 1364
Edwards, Mary L., 1756
Egbert, James, 1522
Egee, John Benton S., 1687
Egloff, William Jacob, 1193
Eijkman, Christian, 1673
Ekermeyer, Charles W., 549
Elder, Horace W., 1987
Ellis, John Bernard, 428
Ellis, Jeremiah William, 612
Ellis, Leland C., 1193
Ellis, Lyman Miles, 429
Elmergreen, Ralph, 1756
Eloriaga y Mendoza, Marcelo, 744
Elsner, Kurt L., 1280
Emerson, Percy James, 1115
Ensley, George Washington, 284
Epps, Isaiah T., 1930
Escher, John Frederick, 1686
Essig, George, 61
Estel, Theodore Fred, 1193
Etzler, Dorsey Paul, 1364
Evans, Howard James, 881
Eyestone, Albert Griffith, 1687

F

Fain, John Nathaniel, 1687
Fair, Robert C., 813
Falk, Curtis Oliver, 1930
Fano, Giulio, 1438
Fargo, William Russell, 1115
Fariss, William E., 284
Farley, John Jay, 1364
Farmer, Charles Edward, 950
Farnham, George O. W., 1280
Farr, Alexander Campbell, 1755
Farr, Herman Sheldon, 1605
Farrar, Joseph P., 284
Faust, Louis P., 1851
Fear, Rawlings Clarence, 549
Ferebee, Edwin Boucelle, 1852
Fernald, Herbert Elwood, 813
Field, Frank Hartman, 429
Figueira, Mathias, 358
Finkelberg, Rose, 1852
Finney, Clara Eugenia, 1687
Finney, Ernest Orion, 1851

Finucane, Joseph Benjamin, 549
Fisher, Fred, Jr., 1443
Fisher, John J., 549
Fisher, Myron Everett, 1929
Flannery, David Michael, 1036
Flehme, Ernst Friedrich, 1756
Fletcher, Edward R., 1522
Flynn, Thomas Francis, 813
Foley, Charles Joseph, 358
Foltz, George Washington, 64
Fontaine, Joseph Eloi, 1036
Forehand, James Franklin, 1687
Forman, Archibald C., 881
Fort, Frank Thomas, 880
Forward, Arthur Joseph, 1756
Fox, Joseph M., 612
Franckle, Cornelius S., 1929
Fraze, Albert B., 359
Frazer, Theodore F., 549
Freericks, Arthur Henry, 612
French, Eugene Brewster, Jr., 1755
Fricke, Gustave H. C., 429
Fuhrmann, Adam, 1364
Fulton, Archibald J., 1756
Fulton, Z. M. Kempton, 881
Fürbringer, Paul, 677

G

Gabriel, Charles John, 881
Gadbois, Joseph Pierre, 1605
Gadie, Paul Francis, 63
Gage, Isaac Bradlee, 63
Gaillard, W Minott, 142
Galford, Gilbert Haven, 1279
Gallagher, Robert Vincent, 880
Galloway, Ethelbert Hines, 1363
Gammill, Stirling Price, 143
Gardner, Frank Pierce, 1930
Gardner, Samuel J., 359
Gaxiola, Jose Antonio, 284
Gay, Ruth Addie, 1850
George, Edgar J., 1521
Ghidella, Edward Joseph, 284
Gibbon, Luther Lewellyn, 143
Gibbs, Edward Thomas, 429
Gifford, Herbert Clyde, 429
Gilbert, D. W., 813
Gilbert, Edward L., 881
Gilchrist, John Brewer, 1605
Giles, Henry Logan, 1522
Gilfillan, Donald Robert, 678
Gilligan, John Philip, 1521
Glazier, Johnson J., 813
Gleim, Paul August, 950
Glenn, S. M., 143
Gochenour, David Thomas, 429
Goetter, Ralph Frank, 1851
Goewey, Washington Irving, 1036
Goff, Elijah Sylvanis, 1036
Golley, Frank Benjamin, 1930
Goodwin, Ira Lee, 1364
Gordinier, Hermon Camp, 1850
Gordon, Patrick A., 881
Gordon, Timothy Daniel, 612
Gordon, William S., 1280
Gover, Bryant Addison, 1851
Grady, William Jackson, 1851
Grant, Alfred James, 1115
Grant, Robert Randolph, 1686
Gray, Addie E. F., 218
Gray, Erio H., 881
Gray, James Charles, 429
Green, George Wesley, 1605
Greiner, Herman A., 64
Grempler, August Edward F., 1193
Griffin, Arthur George, 218
Griffith, Lewis Franklin, 283
Grimes, George Dalton, 1686
Grimm, Claude Emerson, 813
Griswold, Arthur W., 143
Groth, H. Hennerich, 1364
Grothan, Ole, 284
Gullison, Frederick Eugene, 1852
Gunn, Arthur, 1605
Gunn, William, 358
Gustin, Smith E., 285
Guthrie, Lewis Van Gilder, 1363
Gwaltney, John Santford, 950

H

Haffkine, Mordecai Wolff, 1599
Hagan, Cornelius Edward, 679
Hahn, Henry J., Jr., 1987
Hairston, Samuel Henry, 1686
Hale, Byron Leaford, 1522
Hale, George F., 1193
Hale, Jesse Wilbert, 612
Hall, George Cleveland, 143
Hall, Huger T., 813
Hall, Julius Clegg, 1522
Hall, Lewis Smith, 1756
Hall, Marshall Kennedy, 63
Hall, Thomas J., 1756
Hall, Willis Henry, 284
Halperin, Sydney Joshua, 358
Hamby, Walter B., 1756
Hamilton, Edwin C., 1852
Hamilton, William Alexander, 1687
Hamilton, William Thomas, 1687
Haney, Newton Bolivar, 1036
Hanmore, John J., 359
Hanson, David Scott, 950
Harbert, Helen Arentsen, 1115
Harbinson, James Edward, 63
Harding, Ralph A., 1850
Harkey, William I., 1852
Harman, Stephen, 881
Harner, John E., 1987
Haroney, Abdo Mansour, 813
Harper, Isaac Deering, 1522
Harper, Walter Haskell, 1193
Harper, William Albert, 429
Harrington, Gove Saulsbury, 1929
Harris, Gracchus Crawford, 1193
Harris, William James, 359
Harrison, David Carter, 612
Harrison, John Lafayette, 1364
Harrison, William Spencer, 1852
Hart, Charles Joseph, 1852
Hart, Eugene, 881
Hartwell, George N., 143
Harvey, Edwin B., 283
Harvill, J. Paul, 1443
Hay, James Thornwell, 63
Hayden, John Valentine, 63
Hayes, James M., 1115
Hayman, Abe, 1987
Hayne, Theodore Brevard, 549
Haynes, Baxter Morgan, 1987
Hays, John Edwin, 1363
Hazard, George Stevens, 612
Hazlewood, John, 1522
Heator, Jay J., 64
Hebb, John Wise, Jr., 284
Heddens, Claus Hesing, 64
Hedges, Ellis Walton, 611
Hedrick, Edward G., 1987
Heggie, David Livingstone, 1605
Hellman, Elmer E., 813
Hellman, Uriah O., 359
Henderson, Alton Sanford, 284
Henderson, William R., 1852
Henry, Squire Morgan, 1036
Henson, Elias Alexander, 881
Herbert, Gavin Shearer, 1522
Herbert, Ralph Willis, 1851
Herdliska, Charles Vincent, 143
Herman, Henry S., 1930
Hernandez, Fortunato, 1193
Herr, William M., 612
Herring, Benjamin S., 1605
Herrmann, 676
Hess, John N., 1364
Hewetson, Hal L., 358
Hickey, Preston Manasseh, 1443
Hickox, Arthur Swain, 612
Higgins, John William, 428
Hildebrand, J. Hamilton, 61
Hill, Thomas C., 284
Hiller, Robert B., 1687
Hindman, Robert Young, 1193
Hines, Bennett Merwin, 1279
Hoag, Junius Clarkson, 1686
Hoban, James John, 1756
Hodges, Frank Louis, 1364
Hoege, George Lester, 1605
Hogg, Margaret Gardner Forrest, 1605
Hogue, Thomas Fletcher, 429
Holderman, Herbert Helmuth, 1850
Holland, Sarah Elizabeth Maule, 1193
Holland, William Joseph, 1930
Holland, Wilmer Wilkins, 283
Holmes, Garnet Woolsey, 1605
Holmes, Ralph Randolph, 1193
Holmes, Walter B., 1755
Holtsclaw, Zachary Taylor, 1852
Hood, Robert Thurlow, 1522
Hooper, Preston Lee, 1756
Hopkins, Silas Wilson, 549
Hornbeck, Albert Russell, 1193
Horner, Parker P., 218
Horton, Neal, 218
Houck, Ross Montgomery, 1115
House, Robert Ernest, 950
Houser, Frederick William, 358
Houseworth, Michael H., 1687
Howard, Bennett W., 549
Howard, Meta, 813
Howell, Elijah Gilbert, 1852
Howell, Emmett James, 1687
Howse, Neville, 1436
Hubly, Charles Chester, 881
Hudson, Forest P., 549
Hudson, Frank Alden, 881
Hughart, Harry Houston, 1852
Humphrey, Theophilus C., 358
Humphreys, Charles H., 1851
Hunkin, Samuel J., 1686
Hunnicutt, John Atkinson, 1036
Hunt, Walter Lowrie, 1521
Hunter, John, 1756
Huntley, Victor F., 143
Hurd, Frank Hopkins, 1115
Hurst, James A., 679
Hutcheson, J. Ensor, 1036
Hutchinson, William Merrill, 1036
Hutton, Francis Beattie, Jr., 358

I

Ilgenfritz, Ephraim M., 359
Ingham, Stephen A., 549
Ingram, Robert, 1850
Inman, Joseph Cornelius, Jr., 744
Irwin, Henry H., 1036

J

Jackson, Elias S., 744
Jackson, John Alfred, 1686
Jacobs, John Martin, 429
Jacobson, Guy Herbert, 1193
James, Asahel Wesley, 1364
Janney, Oliver Edward, 1929
Jansenius, Anton J. H., 218
Jenkins, George Chapin, 1605
Jenkins, George Crist, 1930
Jenkins, John Herbert, 429
Jeter, Clara E., 1687
Jewett, Bert G., 1930
Johnson, August Elof, 1929
Johnson, Edward Kingsland, 549
Johnson, Edwin Hine, 428
Johnson, Harry Charles, 1929
Johnson, Hiram M., 63
Johnson, Robert Wilkinson, 1850
Johnston, James M., 881
Johnston, Mary Evelyn D'Aloret, 1929
Johnston, William McCandless, 281
Johnston, William Thomas, 1193
Jolly, Arnold, 1852
Jones, David Newton, 1605
Jones, Enoch T., 1605
Jones, Freeman A., 1687
Jones, Guy Russell, 358
Jones, John J., 612
Jones, John R., 429
Jones, Lauren, 1364
Jordan, Alfred Bernard, 1851
Joy, Jairus Addison, 1755
Joyce, William M., 63
Jump, Robert L., 1115
Jungmann, Emil, 813
Jurden, William Eldridge, 284
Justo, Manuel, 1687

K

Kaetel, Charles H., 1280
Kauffman, Abraham Behm, 1852
Kauffman, Jonas Harrison, 1755
Kaufman, Nathan, 1522
Kavanaugh, Charles William, 950
Kay, Clarence H., 881
Kearney, Percy Francis, 744
Keath, James William, 359
Kebabjian, Hrant Setrag, 281
Kellogg, Edward Burtson, 1361
Kelly, Edward S., 1521
Kelly, J. W., 549
Kelly, Robert Patton, 283
Kelly, Webb J., 1687
Kennedy, James Madison, 1755
Kensinger, Eugene Chambers, 1987
Ker, Robert Harold, 812
Kern, Palmer M., 284
Kerns, Harry Neal, 1850
Kieffer, Alonzo Rouse, 812
Killey, Philip Henry, 1364
Kilpatrick, Herbert, 1851
Kimball, Cleaveland Cady, 358
Kimbrough, Percy Marmaduke, 549
Kinard, George W., 1522
King, Allen Mason, 1686
King, Mollie, 744
King, Robert Malone, 1364
Kinley, Clarence Edward, 1363
Kirkendall, Edward E., 429
Kirkland, Edward, 950
Kitchen, Joseph S., 218
Kitchen, Warren A., 1756
Kittredge, Ida F., 950
Kittrell, Norman Drayton, 813
Kleckner, Frank Christian, 63
Kloeber, John S., 881
Knapp, William Henry, 1756
Knause, Benjamin Franklin, 358
Kneedler, William L., 1193
Koerper, Peter J., 1522
Korssell, Claus F. P., 1193
Kraske, Paul, 282
Kreider, Frederick Phillip, 678
Kreider, S. Gurney, 612
Kreye, Paul, 1363
Krolick, Guy Edward, 1687
Krysztafkiewicz, Romuald A., 679
Kugler, Anna Sarah, 813
Kyle, Alfred Gideon, 1279

L

Lackey, Franklin Harris, 1850
Lain, Ernest Hebert, 678
Lamarche, George Tancrede, 1364
Lambert, Fred Ernest, 63
Lambert, Walter Eyre, 678
Lancaster, A. J., 1756
Lancaster, John J., 1364
Lane, Harold Cliford, 143
Lapham, George Nelson, 1851
Latchem, Raymond Lee, 678
Laughinghouse, Charles O'Hagan, 880
Lavine, Israel E., 64
Law, Arthur Ayer, 283
Lawhead, William E., 1852
Lawlor, John Charles, 1987
Lawrence, Charles Solomon, 283
Lawson, William Elisha, Jr., 1850
Lawton, Frederick Percy, 1522
Layton, Caleb Rodney, 1851
Layton, Matthew A., 1930
Leahy, Maurice, 744
Leake, Elgin Kossuth, 1930
Leavens, Dolenna Carlos, 284
Ledbetter, David A., 1193
Lee, Joseph P., 143
Lee, William Ridley, 813
Leffingwell, John B., 1930
Lehmann, Emil H., 429
Leighton, Nelson Eugene, 359
Leiner, 676
Leist, George G., 1687
Leonard, Edward Franklin, 1605
Leri, 1190
Lescale, Joseph Fernand, 1443
Lewis, Stewart, 284
Lieb, Joseph Solomon, 1364
Liebmann, Walter Clifford, 63
Limeburner, Charles A., 813
Lincoln, Walter Rodman, 549
Lininger, George Lewis, 1756
Linke, William Harrison, 549
Linthicum, Thomas W., 284
Lippitt, Benjamin F., 950
Lipschutz, David, 218
Lipscomb, William C., 1522
Little, Bayliss McCuan, 1987
Lockard, Wilmer G., 218
Locke, Samuel Simon, 281
Lomonaco, Domenico, 59
Long, Charles M., 1036
Long, Enoch Cloud, 813
Long, Roy Cleveland, 1987
Longenecker, Christian B., 549
Longenecker, Orlando B., 1686
Love, Cicero W., 284
Lovell, Charles Edward, 1987
Loving, Robert Courtenay, 1929
Lowder, Rosa Ellen Hinshaw, 813
Lowell, Charles Herbert, 1522
Lowis, William John, 678
Ludlum, Charles Henry, 1605
Lukin, Nicholas, 143
Lunt, James Phillip, 1036
Luongo, Fiore, 429
Lutze, Edson Haskell, 1987
Lyne, Frank Riecker, 744
Lyng, John A., 1687
Lyons, James H., 1851

M

McAvoy, Jeremiah Francis, 679
McCabe, Charles Philip, 1443
McCall, Walter Price, 678
McClean, Samuel N., 65
McClinton, William Sinclair, 1987
McCloud, George Pryor, 1852
McColn, Nathan M., 1851
McConnell, John Bradford, 358
McCord, Morton Monroe, 881
McCord, Elias Sheridan, 1851
McCormick, Daniel Leo, 1929
McCormick, Emmett B., 1280
McCowan, William Porteous, 1115
MacCoy, Cecil Lawrence, 284
McCulloch, James Henry, 744
McCurdy, Eugene Lee, 1036
McDonald, James William, 1443
McDonald, John Charles, 1605
McDowell, Anderson Eddie, 143
McDowell, James, 1852
McElHinney, Joseph Hannold, 1852
McEwen, Ernest Lewis, 1521
McFarlane, Murray, 950
MacGhee, Charles Maxwell, 1851
McGibbon, Salton, 1036
McGovern, Thomas James, 1929
McGrew, Milton Smythe, 64
Macgruer, Henry Alexander, 1850
Machell, Henry Thomas, 1987
McIntire, Marshall Collier, 1987
McIntosh, Frederick Lemont, 359
McIntyre, Elbridge Albert, 1687
MacKall, Louis, 611
McKinney, James W., 950
McKittrick, Ora K., 950
Macklin, Lurin Patrick, 1929
McLaughlin, Andrew Joseph, 283
McLaughlin, Patrick William, 612
McLemore, Benjamin A., 429
McLemore, Tipton, 881
MacLeod, Alexander F., 1115
McMackin, John B., 1687
McMahon, James, 1036
McManama, John Carroll, 549
McManus, William F., 1364
McMichael, *Lafayette D., 429*
McMitchell, Fred G., 1280
McMullan, Hillard, 813
McNamara, Daniel William, 143
MacNichol, George Pope, 612
McNutt, Sarah J., 1443
McQueen, Daniel W., 612
McRae, Charles D., 1852
MacRae, John Donald, 1521
Madsen, William J., 1522
Maetke, Hugo Frederic, 1850
Malpas, Samuel Herbert, 1851
Mann, Thomas Allen, 218
Mann, Verne Artemus, 1756
Mansfield, William Amos, 1686
Marsh, Newton Bruce, 1036
Marshall, Fremont M., *429*
Martin, Jesse Edward, 1756

Martin, John S., 1850
Martin, Lewis Ernest, 1193
Martin, William Arthur, 1522
Maskey, George O., 1443
Mason, Louis Irving, 1364
Matson, William Franklin, 1036
Matter, Lloyd Emerson, 1852
Matthes, Max, 62
Matthews, William F., 1115
Maule, Sarah Elizabeth, 1193
Maupin, James Lawrence, 1686
Mayer, Lawrence P., 549
Mayer, Oscar J., 549
Mayes, Charles M., 284
Mead, George F., 1443
Mead, Louis Guy, 283
Mealand, Charles, 64
Mealy, George Newton, 1929
Means, Charles S., 283
Meisenhelder, Robert Nebinger, 1363
Melanson, Amedee Raymond, 881
Meredith, S. P., 1115
Meriwether, James Addison, Jr., 549
Merrick, Robert Michael, 358
Mettlen, James Harvey, 429
Meury, Theodore John Bertrand, 1930
Miles, Luella Prudence, 143
Miley, Isaiah, 1756
Milford, H. A., 143
Miller, Francis D., 881
Miller, Harry L., 1115
Miller, James F., 950
Miller, John Frederick, 1687
Miller, John Milton, 881
Miller, Robert S., 549
Miller, Weeden C., 881
Milligan, William Wright, 1364
Misenheimer, Charles Augustus, 283
Mitchell, Earle C., 679
Mitchell, Henry C., 1363
Mitchell, William Leland, 1987
Mix, Charles Melvin, 284
Moench, Louis Leypoldt, 429
Moir, Charles, 1035
Moll, Louis Arthur, 64
Monaghan, William Anthony, 358
Monnich, Walter Arthur, 1036
Monserrat y Marzo, Raphael, 1756
Montgomery, Caleb A., 1852
Montgomery, John Andrew, 950
Moon, Schuyler Barclay, 549
Mooney, George Swan, 1929
Moore, Clarence, 143
Moore, Newton L., 1364
Moore, Philip Patrick, 1686
Mork, Ole, 1364
Morris, Edward Kirby, 1522
Morris, Robert Harold, 1363
Morrow, Augustus M., 950
Morse, Edwin Augustus, 1851
Morse, Stephen A., 1852
Morton, Alexander R., 1929
Morton, Thomas S. K., 1115
Mosher, Marshall James, 744
Mowery, William E., 549
Mullin, Seth Smith, 1755
Mullins, J. Arthur, 1035
Mumaw, Walter Scott, 284
Mundhenk, Lewis Reed, 283
Munoz, Edmund A., 549
Munson, John Austin, 1115
Murphy, Walter E., 678
Murray, Alex J., 359
Murray, Benjamin Frank, 1115
Murray, Thomas Jefferson, 1851
Murray, Uriah Burton, 744
Musgrove, Alvin K., 429
Myers, Adam Young, 1279
Myers, Ivan T., 1852
Myers, James H., 429

N

Nahl, Constante Alexander, 359
Nance, Hiram I., 1852
Neal, George Philip, 549
Neff, Joseph Seal, 1686
Neill, Mather Humphrey, 1755
Nelson, Arthur Barris, 143
Nesbitt, Samuel S., 612
Nerin, Joseph Armstrong, 1929
Newberry, Arthur Devere, 283
Newell, George Elmer, 143
Newhall, Alden Russell, 880
Newhall, George F., 549
Newton, Isaac James, 63
Nicholson, Samuel Timothy, 63
Nicodemus, John Phillip, 1522
Noer, Julius, 679
Nolen, Richard Spencer, 549
Nolte, Henry William, 813
Norris, Andrew, 1930
Norris, Samuel Brown, 64
North, Ada P., 1852
Northington, Samuel Sterling, 1851
Northum, Alex C., 218
Nott, George Wallace, 1115

O

Oakman, Carl Shepard, 283
O'Brien, Martin Y., 679
O'Callaghan, Mary Vincent, 1686
O'Connor, Patrick T., 284
O'Keefe, Walter Joseph, 1851
Ollar, Martin L., 1036
Oliver, Wiliam F., 1115
Olmstead, W. H., 1605
O'Neil, Melville Erwin, 612
Ormsby, Hiram Belden, 1193
Osbon, Guy George, 63
O'Sullivan, John Joseph, 1930
Ours, Benjamin F. P., 429
Overmyer, Benjamin F., 1852
Owens, Francis C., 813

P

Pabella y Rafa, Justo, 549
Paddock, Charles Evart, 1686
Paey, James S., 359
Page, Hartstein Wendell, 1279
Pagels, George Henry, 1115
Painchaud, Victor, 881
Paine, Ara Marshall, 812
Palmer, John, Jr., 218
Paris, Louis J., 1851
Parker, Julius A., 679
Parmelee, William Josiah, 1851
Parr, Joseph D., 1987
Parr, Samuel Marion, 813
Patten, Harry F., 813
Patterson, George W., 284
Patton, James McDowell, 218
Paxton, Eli John T., 744
Payne, David Iley, 1755
Peake, Samuel A., 358
Pearce, Benjamin Franklin, 1036
Peck, Elizabeth L., 1363
Peckham, Allen Gifford, 549
Peham, 676
Pelton, Henry Hubbard, 1850
Penn, George Thompson, 284
Pennell, William W., 1443
Perdue, William W., 1755
Perkins, David R., 1850
Perkins, Isham Edgar, 1364
Perry, Charles Eugene, 1522
Perry, John T., 1279
Pescarola, Bellom, 1190
Peterman, Charles P., 1443
Peters, Lulu Hunt, 429
Petersdorf, Gustave Adolphus, 1987
Pettus, Cowley S., 950
Pfeiffer, Charles William, 678
Pfister, Carl E., 1930
Phillips, Dade Trueman, 218
Philpot, Will W., 359
Pickett, Jesse Cameron, 1687
Pierce, Lyston H. D., 1930
Pike, Columbus Jefferson, 1756
Pike, Winfred Carle, 1115
Pineda, Eloy V., 1687
Pitzele, William A., 1522
Plummer, Gideon Thomas, 143
Polak, Mark Straus, 1280
Pollock, Robert, 143
Pond, Arlington, 1363
Pope, Emily Frances, 1363
Porter, Henry Evans, 283
Powell, Charles Bower, 950
Powell, George Norman, 1687
Powell, Henry Hubert, 1756
Powell, Stephen Cambreleng, 1521
Powers, James William, 218
Poynor, Erton Edwin, 1850
Preble, Paul, 428
Precourt, George Charles, 358
Prees, Griffith William, 1280
Price, Clarence E., 284
Price, Frederick Fraley, 1193
Price, Harmon Ellsworth, 63
Price, Oliver A., 1115
Prince, Arthur E., 1686
Proffitt, Thomas Jefferson, 1363

Q

Quinn, Joseph Edward, 1036

R

Ragsdale, John W., 1605
Rand, Maritt J., 1987
Randall, Benjamin M., 64
Randle, John H., 1851
Rankin, William Rasbury, 1852
Raphiel, Joseph, 1851
Rasar, Reuben Brooks, 1755
Rawlings, Claude L., 1036
Ray, Glenn Raymond, 1280
Ray, William H., 429
Rea, Benjamin F., 284
Read, Effie Alberta, 1035
Reber, Conrad Samuel, 812
Reddish, Albert W., 1364
Redlich, Emil, 676
Redmond, John Patrick, 1851
Rehn, Ludwig, 282
Reifsynder, Joseph Calvin, 1686
Remington, Charles I., 679
Renner, Alois Maria, 1756
Rennie, George Septimus, 1687
Rhea, Levi Jackson, Jr., 359
Rhoads, Samuel, 218
Ribelin, Thompson, 1756
Richards, William Dallas, 1930
Richardson, Elias Smith, 1115
Richardson, William M., 64
Rideout, William Jacob, 744
Riedy, James A., 813
Rierson, Robert Lee, 218
Riley, Joseph B., 950
Ringolsky, Sol, 679
Risch, Henry F., 1930
Roberts, John A., 812
Roberts, McCord G., 1279
Roberts, Philip Font, 65
Robertson, William Phelps, 1756
Robinson, Charles H., 950
Robinson, Harry C., 881
Robison, John Eayre, 1850
Rochette, Louis Victor, 218
Rockwell, William Hayden, Jr., 1755
Rodgers, Spencer Clay, 284
Rogers, Albert, 1687
Rogers, Charles C., 64
Rogers, Daniel R., 1756
Rogers, William Hiram, 950
Rohn, Adelia A., 881
Rood, Luther Colby, 358
Root, Matt Russell, 1280
Roquemore, Andrew Jackson, 1851
Rose, Elbert P., 143
Rosenbladt, Fritz, 1850
Rosenbloom, Benjamin, 1115
Ross, Charles Artman, 1755
Ross, David Currie, 1686
Ross, Joseph Louis, 429
Rountree, Theodore Dudley, 1852
Rowe, Humphrey Wilmer Barbour, 428
Rowe, Kit W., 950
Rowland, Edgar J., 358
Rowles, John Alonzo, 1193
Roy, Aurile, 1755
Royster, Wisconsin Illinois, 1605
Ruble, George Clyde, 1279
Rupright, Francis, 1443
Rush, George Allen, 1851
Russ, John Frederick, 744
Ryan, Louis X., 359
Ryan, Michael Coleman, 1522
Ryan, William J., 284

S

Sadler, Thomas Buchanan, 1930
St. Lawrence, Arthur John, 143
Sakowitz, Charles Samuel, 1687
Salisbury, William W., 283
Sallade, Frank Reed, 64
Sampsell, David M., 283
Sandel, John Wesley, 429
Sandrock, William Christian, 284
Saucier, Merrick Edmond, 142
Sauthoff, Mary Blakelidge, 950
Say, William Joseph, 881
Scharlieb, Mary, 1924
Schaub, Oscar P., 1364
Schlotbom, Max G., 63
Schmidt, Marie S., 1929
Schmitt, Edwin Christian, 744
Schmitz, John, 284
Schmucker, Noah Frederick, 1280
Schneider, Fred, 1987
Schneider, John E., 284
Schooling, H. Guy, 143
Sclavo, Achille, 608
Scott, Elmer Ellsworth, 1852
Scott, Florence, 679
Scrimgeour, Robert, 1987
Scripture, James Levi, 812
Scruggs, Marion Kirkland, 1115
Scudder, John King, 611
Sebastian, Charles M., 1522
See, Sherman, 813
Seger, Dana Boardman, 64
Selby, Robert Wilson, 1687
Selling, Nathalie A., 1756
Serritella, Michael A., 744
Sewell, Charles A., 1193
Shacklette, James Richard, 143
Shafer, Almon S., 1522
Shafer, Clarence Joseph, 1364
Shaffer, Vesper, 358
Shallcross, Isaac G., 1363
Shank, George Austin, 218
Sharp, John T., 359
Shattuck, La Forest Almond, 1930
Shaver, Davis L., 1756
Shaw, Bert Luverne, 1756
Shaw, Edwin Butler, 1987
Shaw, Thomas Pierpont, 950
Sheahan, Frederick James, 612
Sheldon, John Eckle, 143
Shelton, Benjamin J., 1852
Shenk, George R., 744
Shepherd, John C., 1756
Sherman, Albert William, 1851
Sherrill, Albert, 143
Sherrod, Daniel Webster, 881
Shields, Nicholas J., 1930
Shirley, John Fletcher, 881
Short, Charles Augustus, 1851
Short, Ward B., 1930
Shrader, James A., 64
Shurick, Shelby Cullom, 1443
Shurtleff, Henry A., 1756
Shute, John William, 1280
Sickel, Harry L., 1193
Sifford, William Ralph, 1757
Sim, Alexander Smith, 1280
Simon, Samuel Holman, 1193
Simpson, Henry A., 1987
Simpson, Jesse Pickrell, 1605
Sims, William M. T. S., 679
Sinclair, Archibald Neil, 1686
Sinclair, Daniel S., 359
Skillern, Ross Hall, 1115
Skinner, Leander Zebina, 1522
Slaught, Arthur Wayland, 1851
Slaybaugh, Charles Nelson, 143
Sloan, Robert Tarleton, 1605
Smiley, Thomas Benjamin, 1279
Smith, Arthur McD., 64
Smith, Charles A., 1756
Smith, Charles Herrod, 358
Smith, Eduard Sylvester, Jr., 1036
Smith, Edward Wier, 1522
Smith, Elmer Hurley, 429
Smith, Ernest Ellsworth, 1987
Smith, Frederick Forbes, 1687
Smith, George Grant, 1851
Smith, George Luther, 549
Smith, John Calvin, 1036
Smith, Joseph Tait, 1035
Smith, Julia Holmes, 1756
Smith, Lonzo Virgle, 1930
Smith, Marcus Duke, 1521
Smith, Moses Edwin, 218
Smith, Paul, 813
Smith, Stuart Luthy, 1756
Smith, Thomas Jefferson, 950
Smythe, Emmett Charles, 812
Sneed, Elwood Park, 429
Snipes, Robert L., 143
Snyder, Frederick De Forest, 812
Soboslay, Julius, 143
Solomon, Edwin Philip, 428
Somers, Andrew Bartholomew, 1686
Spalding, Warren Clyde, 284
Spear, Herman S., 1036
Spence, Walter Scott, 1280
Spitzer, Edward Louis, 1756
Stackpole, Roy Logan, 1036
Stadler, Lester C., 218
Stafford, Charles E., 813
Stammer, Peter J., 1756
Stanley, Joseph Monroe, 1364
Stannard, Walter D., 612
Stanwood, Albert Linscott, 1755
Starkweather, George Anson, 950
Statler, Will Kennett, 679
Stedman, Samuel M., 1036
Stephenson, Benjamin George, 1605
Stern, Charles Seymour, 950
Stetler, Thomas Harrison, 1280
Stewart, George W., 1687
Stewart, Lever Flegal, 1443
Stewart, Robert W., 1686
Stiffler, Martin Luther, 1280
Stillwell, John Edwin, 1522
Stiltner, Horace Frank, 1605
Stimson, Charles H., 1364
Stirk, James C., 143
Stockwell, Charles Bliss, 1279
Stone, James Henry, 549
Stone, John Hamilton, 142
Stone, John M., 1930
Stone, Samuel W., 1987
Stott, John S., 64
Stout, Luther Hinton, 358
Stowell, Frank Edgar, 1280
Stratton, Asa Bennett, 1443
Strauss, Victor Charles, 143
Strawn, James Gillespy, 1522
Strouse, Frederic M., 744
Stubbs, Ambrose H., 612
Stucky, Fred V., 1193
Stulik, Charles A., Sr., 1987
Stump, Addison L., 1605
Sullivan, Claude Chauncy, 420
Summerlin, James A., 1686
Sutherland, Orlando L., 1035
Sutherland, William Henry, 1851
Sutton, Robt. Lee, 1755
Swartwood, Frederick Adelbert, 1850
Swartz, Bret Albert, 1280
Sweeney, John Patrick, 1755
Sweet, Edward Augustus, 813
Swezey, Frank Arthur, 881
Swift, Robert, 813
Szamosi, Emery, 1522

T

Talbott, John H., 1364
Tartaro, Giuseppe, 1851
Taussig, Arnold Steven, 1605
Taylor, Blair Dabney, 1929
Taylor, David Henry, 1193
Taylor, George C., 1851
Taylor, John F., 359
Taylor, Robert, 1852
Tebault, William Paul, 1364
Teel, Charles Seneca, 359
Teeple, Morey L., 218
Ten Broeck, Louis Leonard, 950
Terrell, John Hudson, Jr., 950
Teter, George Warren, 358
Thagard, Robert Albert, 283
Thomas, Benjamin A., 63
Thomas, Pressley Spurgeon, 1851
Thomasson, John C., 1687
Thombs, Samuel Brackett, 63
Thompson, Charles Elliot, 1364

Thompson, Cuthbert, 813
Thompson, Cyrus, 1850
Thompson, Franklin John, 549
Thompson, George W., 1852
Thompson, James Thomas, 549
Thompson, John Howard, 1035
Thompson, Saunders James, 1687
Thornton, John McKinney, 1852
Threadgill, Jesse Mercer, 281
Thuerer, Edward Walter, 611
Tieken, John D., 1930
Tiemann, Paul Ernest, 429
Tipton, Morris, 1987
Todd, Joseph Davis, 1036
Tombaugh, Leon Herbert, 1115
Tomlinson, Oscar R., 1035
Toole, John E., 1930
Toomey, Gilbert Jennings, 63
Tourner, John Page, 1930
Towle, Henry Charles, 1280
Townsend, Richard Ellsworth, 1756
Trotti, William Edmond, 679
Trull, James Crombie, 1193
Turner, Osborn Moore, 881
Tutt, Lewis Hiram, 1852
Tuttle, Samuel Porter, 1193
Tyler, Burnley Duke, 1115
Tyrode, Maurice Vejux, 64

U

Umbel, Isaac Walter, 1115
Urmson, Allan Walker, 1929

V

Vail, Derrick Tilton, Sr., 1443
Valude, 1190
Van Baun, William Weed, 1521
Van Horn, Abram L., 64
Van Zandt, Garrett, 1687
Vaughan, Edwin Price, 1605
Veazey, Allen H., 813
Veenstra, William, 63
Venters, James Monroe, 1036
Vigus, Charles B., 1115
Villars, Horace F., 63
Vis, Edward Wilbur, 1364
Von Gremp, Henry J., 1930
Voorhees, J. Martin, 1851
Voyles, James Sylvester, 64
Vroom, John Nicol, 1522

W

Wagner, John R., 950
Wahl, Frederick, 359
Waight, William F., 359
Walker, John L., 358
Walker, Lester E., 1687
Walker, Thomas Edward, 63
Walker, Walter Edwin, 1522
Wall, Samuel Davis, 1755
Wallace, George Loney, 358
Wallace, Nathan C., 1930
Wallace, William H., 1755
Walsh, Edward Joseph, 1756
Walter, William Rundle, 1852
Walters, Edward Reginald, 950
Walton, Martin A., 1756
Wanzer, Lucy Maria Field, 1755
Ward, Burr Gammill, 950
Ward, Charles W., 813
Ward, William H., 1987
Wardlaw, William N., 1036
Warner, Louis Henry, 1443
Warren, Alexis Monroe, 429
Warren, J. W., 63
Warren, Stanley Sevier, 1522
Wassmann, Charles Wayman, 1929
Waters, Price Taylor, 429
Watson, James H., 813
Watters, Fowler Alfred, 549
Watters, Peter Kemp, 679
Watts, William Cheney, 1036
Weamer, John A., 1036
Webb, Francis Asbury, 1930
Webb, William J., 1280
Webber, George Ernest, 1036
Weber, Ernest Owen, 549
Weber, Philip Henry, 1115
Webster, Henry Bently, 1193
Webster, John Dixon, 1687
Webster, Ralph Waldo, 142
Webster, William Joseph, 813
Weever, John Blanchard, 1852
Weil, Carl A., 218
Weinstock, Louis, 950
Welch, James C., 1036
Welch, Warren Wesley, 549
Wepfer, Alfred Vincent, 1522
West, Heard Hopper, 429
West, Sydney Vattel, 63
West, William F., 283
Weyer, Ross Steele, 881
Weyher, Victor Emmanuel, 359
Wheeler, Arthur Le Roy, 1193
Wheeler, Clarence Elton, 1443
Wheeler, Hial A., 1852
Whelan, Michael Edward, 1852
Whelchel, Cornelius C., 679
Whicher, Charles M., 813
Whisler, H. F., 429
White, Calvin Stuart, 1755
Whitehurst, Elijah Bell, 813
Whitney, Jay Philon, 744
Wideman, Samuel A., 1756
Wiggs, Leslie Byron, 358
Wilcox, Frank L., 1756
Wilcox, Mary Riddle, 1852
Wildman, H. Valentine, Sr., 1364
Wiley, Harvey Washington, 142
Williams, Buxton B., 1852
Williams, Charles E., 63
Williams, Charles Edward, 1443
Williams, David A., 283
Williams, David Richard, 813
Williams, Elmer Ellsworth, 1755
Williams, John Hartford, 950
Williams, Thomas Herbert, 1115
Williams, William Kennedy, 1280
Willmot, John Wheaton, 950
Willyard, Warren H., 1364
Wilson, George Burwell, 218
Wilson, Thomas Rankin, 1987
Wilson, Horace Oliver, 1756
Wilson, John, 881
Wilson, William Tassie, 1605
Wiltfong, Charles O., 1193
Winslow, Josephine E. Barbat, 63
Winstead, Frank V., 1686
Winternitz, Helen Watson, 1364
Witham, Alphonso Nelson, 1522
Woerner, Lydia, 813
Wolf, A. Curtin, 950
Wolf, William H., 64
Wolfs, Jean F., 1755
Wood, Thomas Walter, 1756
Woodruff, Wylie Glidden, 284
Woodson, James Madison, 1193
Woof, Joseph Thomas, 1755
Woolway, Christopher J., 1686
Worley, Samuel G., 1279
Worrall, Henry Rufus Lankford, 549
Worthington, Thomas Chew, 283
Wright, Albert George, 1687
Wright, Charles Douglas, 1036
Wright, Charles Sias; 63
Wright, George H., 678
Wright, Guilford Sims, 1036
Wright, Lewis W., 143
Wright, Richard L., 218
Wrisley, John A., 429
Wyant, James Edward, 812

Y

Yarnell, Samuel I., 429
Yerger, Louis Brinton, 1035
York, James McC., 358
Yost, Edmond Reno, 143
Young, Antonio De Bord, 678
Young, Henry Alfred, 218
Young, John Claudius, 1443
Young, Warren Hastings, 143
Youngs, Henry, 143

Z

Zerfing, Charles E., 1605
Zieber, William Harvey, 1987

E

EAR: See also Antrum tympanicum; Deaf: Deafness; Hearing; Otology; etc.
  cauliflower ear in wrestler, 817
  discharge in tonsillectomized and nontonsillectomized children, [Kaiser] *839
  discharging, method of making swabs for dry treatment, [Pratt] *1259
  disorders, seaside for, 280
  drums, in intestinal infection, normal until just before death, [Wishart] *1087
  infection and infection of intestinal tract in infants, [Wishart] *1084
  Inflammation of Middle Ear: See Otitis Media
  internal, vestibular function in relation to vomiting during pregnancy, [Frey] 380—ab
  left, "ticking" sound audible at 20 inches from, [Stoll] *796
EARTH: See Soil
EARTHQUAKE, children born in year of, Japan, 1034
EASTMAN Dental Clinic, 1815; 1921
EAT and grow fat, 1507—E
  and stay thin, 1182—E
EATING: See Feeding
EAU DE COLOGNE, dermatitis from, [Lane & Strauss] *717
  perfumes and pigmentation, 40—E
ECBOLICS: See Labor Induction
[illegible] e also Douglas Pouch; Spleen; Thyroid; etc.
  [illegible] [Willis] 695—ab
  [illegible] with polypoid forma[illegible] —ab
  surgical diseases of bile tract caused by, [Finkelstein] 829—ab
  treatment, surgical, [Gerulanos] 1952—ab
  unusual localization in inguinal hernia sac, [Gioia] 1216—ab
ECLAMPSIA, etiology, [Theobald] 234—ab
  mortality, undiminishing, England, 806
  treatment, liver, [Matters] 897—ab
ECONOMICS, business depression and hospital fees, 1360
  results of modern treatment of diabetes, [Bowen] *365
  status vs. birth rate, 1520
ECONOMICS, MEDICAL: See also Fees; Medical Service; Tax
  A. M. A. Bureau of: See under American Medical Association
  charity in private practice, report, 943
  Cost of Medical Care: See Medical Service
  Dr. Rappleye appointed professor of, at Harvard University, 1432
  misspent wealth for health, 599—E
  telescopic vision and, [Irons] *243
ECZEMA, blood alkalinity in, [Bikkenin] 1546—ab
  chronic, treatment, 955
  determination of degree of disability in, 1521
  endogenous eczematoid dermatitis, [Ramirez & Eller] *1083
  from silk, [Taub] 294—ab; 1456—ab
  in breast-fed vs. secretion of alien proteins in human milk, 1593—E
ECZEMA—Continued
  in children, calcium for, [Ochsenius] 379—ab
  nostrum, Healing Ointment, 1606—BI
  not due to magnesium sulphate, 1447
  of face from quinine in shaving lotion, [Burgess] 691—ab
  papular, 289
  pathogenesis of, 740
EDEMA: See also Ascites; Brain; Glottis; Larynx; Lungs
  angioneurotic, from abscessed tooth, [Ramirez & Eller] *1081
  angioneurotic, from heat or cold, [Duke] 293—ab
  angioneurotic, Quincke's or Bannister's disease? 684
  cachectic or malnutritional, and serum proteins, [Bruckman] 449—ab
  famine, [Aykroyd] 1131—ab
  fluid, analysis vs. blood serum and spinal fluid, [Bland & White] *1492
  in new-born, [Shannon] 756—ab
  of nephritis, calcium lactate or chloride in, 1447
  plasma-protein loss with, [Bennett] 1996—ab
  predisposition to, in pregnancy, [Baráth] 1877—ab
  pregnancy, albuminuria and hypertension, etc., [Huggins & Bucy] *653
  serum protein and, 1914—E
  treatment, salt solution for cerebral dehydration, 1039
  treatment, sodium chloride solutions intravenously, [Farrington] 1048—ab
  treatment, Southey's tubes, [Bland & White] *1489
EDUCATION: See also Children, school; Dental education; Health education; Physical Education; Schools; Students; University; etc.
  higher, in America, 1834—ab
  inheritance and, 107—ab
EDUCATION, MEDICAL: See also Degrees; Fellowships; Graduates; Interns; Scholarships; Schools, Medical; Students, Medical; University; etc.
  A. M. A. Reference Committee on, report, 41
  Annual Congress on, Feb. 16-18, 1931, 1918
  curriculum, Association of American Medical Colleges, 534
  experimental method in, [Babkin] 1376—ab
  graduate, Association of Medical Instruction of Paris Hospitals, 737
  graduate, continuation courses, Norfolk County (Va.) Medical Society, 1273
  graduate course, Berlin, 422
  graduate course in heart disease, 1511
  graduate course in industrial medicine, 1190
  graduate course in preventive medicine for health officers, Tennessee, 1752
  graduate courses, Budapest, 425
  graduate courses in tuberculosis, 940
  graduate, experiment in, Maine, 1511
  graduate, extension work in, [Bardeen] 755—ab
  Graduate Fortnight of New York Academy of Medicine, 349; 1106; 1272
  graduate, Postgraduate Medical Association of North America, 1438
EDUCATION, MEDICAL—Continued
  graduate, postgraduate tour of British Columbia Association, 805
  graduate, Society for Promotion of Graduate Instruction anniversary, 1685
  graduate study, guides for, published by New York Academy of Medicine, 1435
  graduate study, organization to promote, 217
  graduate study, South Africa, 810
  graduate teaching and Philadelphia county society, 1513
  in United States; annual presentation of data for 1930, *487; 535—E
  National Board examination accepted by medical schools, [Bierring] 1376—ab
  of Bantu native, 1112
  of physicians at home, 1597
  premedical, cooperation between college and medical school, [Hawkes] 159—ab
  premedical education, first year students, *187, 535—E
  premedical, list of approved colleges for, *487; *488; 535—E
  premedical requirements in chemistry, [Clarke] 159—ab
  premedical, statistics on, *497; 535—E
  premedical work required by medical college, *487; 534; 535—E
  premedical work, sources of, *499; 535—E
  present-day, trend of, [Masson] *765
  reform, in Ukraine, 215
  statistics, *499; 535—E
  successful physician, [Upham] *551
  summer course, Italy, 809
  teaching in Roman empire, 182—ab
  teaching of lower bowel disorders with life-sized m[illegible]
  teaching [illegible] *383
  teaching [illegible] rusen] 159—ab
  training and supervision of interns, *508; 535—E
  training in obstetrics in hospitals for interns, *513; *515; 535—E
  training in orthopedics, [Francisco] *1467
  training in surgery for interns in hospitals, *513; *514; 535—E
  training missionaries, 740
EFEDRON HART NASAL JELLY, 952—BI
EFFUSION: See Pericarditis, tuberculous; Pleura; Pleurisy
EGGS: See also Ovulation
  mammalian, fertilized, Lewis-Gregory moving pictures of, 1509—E
  raw, and milk, digestion of [Childrey] 1374—ab
  secretion of alien proteins in human milk, 1593—E
  yolk, raw vs. glycogen deposition in liver, [Abelin] 1785—ab
EIJKMAN, CHRISTIAAN, death ,1673—E
ELASTIC reducing belts effective? 883
ELBOW, foreign bodies in (baseball pitchers), [Kirby] *404
  fracture, intra-articular, [Homma] 900—ab
  nodosis rheumatica, [Strauss] 900—ab
  osteochondritis dissecans cubiti, [Christensen] 1388—ab

ELBOW—Continued
surgical exposure, complete, [Molesworth] 1868—ab
tennis, epicondylitis humeri, [Stewart] 221—C
ELECTRIC, bistoury in gastric surgery, [Guillemin] 1459—ab
cord and light carrier used in teaching of lower bowel disorders, [Paulson] ★198
current, disorders caused by, in dental work, [Lippmann] 1385—ab
Faraday centenary, 806
General Electric sodium-in-quartz photoelectric cell and Sun Lamp, radiations from, [Coblentz] ★411
Injuries: See also Electrocution
injuries, abnormalities in central nervous system by, [Langworthy] 231—ab
injuries, polyneuritis and neurosis after lightning stroke, [Urechia] 81—ab
inhaler, Sorensen Therapeutic Inhaler, 413
stimulation (distal unipolar) in dystonias, [Néri] 1948—ab
Treatment: See also Medicolegal Abstracts at end of letter M
treatment of stricture of urethra with bipolar current, [Livermore] 1130—ab
tungsten filament lamp; radiation from, [Coblentz] ★411
vibratory auditory apparatus for deaf, [Jellinek] 83—ab
See Heart
on normal tissues,
See Diathermy
nerve cell injury in,
on heart, [Fiddes] 759—ab
effects of loss of gastric juice, 936—E
in Blood: See Blood
ELECTRONIC TEST: See Medicolegal Abstracts at end of letter M
ELECTROSURGERY: See Cautery; Diathermy, surgical
ELEPHANTIASIS, scrotal, surgery for, [Starna] 899—ab
ELEVATOR, uterine, [Monjardino] 630—ab
ELEVEN BROS. TONIC, 952—BI
ELLENBAUM, FRANK H., 814—BI
EMBLEM, A. M. A., official color of ribbon for, 44
A. M. A., presentation to past-presidents, Detroit session, 117
EMBOLISM: See also Thrombosis
air, [Rettig] 1542—ab
air, cerebral, hemorrhage into cavity in lung, [Hochstetter] 762—ab
arterial, after injecting mercuric salicylate in oil, [Skolnik & Nomland] ★1742
arterial, of extremities, [Marcus] 700—ab
arterial, with multiple aneurysms of arteries *of right arm, [Wilbur] 891—ab*
essential nature and causes of, 1442
in gynecologic operations, [Polak] 1774—ab
incidence in Leipzig, [Sarafoff] 1784—ab
of abdominal aorta, [Hamilton] 162—ab
prevention during puerperium, [Wachtel] 1059—ab
pulmonary, at surgical clinic, [Killian] 168—ab; [Geissendorfer] 168—ab
pulmonary, calcium chloride subcutaneously prevents, [Martin] 831—ab
pulmonary, Trendelenburg operation, [Nystrom] 1776—ab
pulmonary, weather effect on, [Fritzsche] 1625—ab
renal, caused by cancer tissue, [Froewis] 1953—ab
EMBRYO, when does the soul enter? 1191
embryonal cancer of testicle, [Champlin] ★96; [Wollheim] 693—ab
EMBRYOLOGY, posterior pituitary extracts and dermal pigments, 483—ab
EMERGENCY: See also *First Aid*
acute abdominal, purpura as, [Bailey] 1867—ab
depository for serums, 880
service, improvement, Prussia, 428
EMESIS: See Vomiting
EMETINE, effect on Endameba histolytica, [Miller] ★466
hydrochloride effect on ciliated epithelium, [Kochmann] 238—ab
poisoning, fatal, [Leibly] 368—ab
treatment in pulmonary abscess, [Fliederbaum] 1624—ab
treatment, pneumopathy with spirochetes in sputum, [Albot] 560—ab
EMOTIONS: See also Anger; Fear; etc.
are hereditary, [Mayo] ★646
blood platelets and spleen, 537—E
disease and emotional life, 486—ab
heart *phenomena*, [Mayo] ★646
hypertension, [Stieglitz] 368—ab
importance, 1683
shock, effect on gastro-intestinal tract, [Moleen] ★910
EMPHYSEMA in neoplastic and other lung diseases, [Jackson] ★639
mediastinal and interstitial, etiology, [Joannides] 824—ab
mediastinal, surgery for, [Nissen] 242—ab
of head and neck complicating tonsillectomy, [von Hofe] ★934

EMPHYSEMA—Continued
of scrotum after injection of air into kidney, [Schüller] 311—ab
sequel of warfare gas poisoning, [Reiche] 379—ab
EMPLOYEES; EMPLOYMENT: See Industrial; Workmen's Compensation Acts; under Medicolegal Abstracts at end of letter M
EMPLOYMENT *BUREAU: See Placement* Bureau
EMPYEMA, acute, [Locke] 1030—ab
acute, partial rib removal plus close drainage in infants and children, [Douglas] 158—ab
cavity, antiseptic solutions for irrigating, 886
etiology non-lactose-fermenting bacillus, [Frazer] 896—ab
in children treated by tidal irrigation and suction, [Hart] 1129—ab
of gallbladder with subphrenic abscess, recipient of many transfusions, [Polayes & Lederer] ★407
ruptured, of gallbladder with Ascaris lumbricoides, [Power] 452—ab
thoracic, acute, treatment, [Foster] 961—ab
thoracic, new siphon system for continuous drainage, [Pottenger] ★1670
thoracic, simplified treatment, [Singleton] 369—ab
treatment, constant vacuum aspiration, [Mansur] 301—ab
ENCEPHALITIS: See also Encephalomyelitis; Meningo-Encephalitis
changes in brain in so-called exsiccosis, [Goldzieher] 700—ab
chronic, roentgen treatment, [Trautmann] 1302—ab
complicating whooping cough, [Mikulowski] 637—ab
diagnostic value of increased spinal fluid pressure, [Mayer] 379—ab
French Academy of Medicine discusses, 58
Leyden cowpox substance, [Gorter] 978—ab
measles-encephalitis, [Motzfeldt] 382—ab
muscle tonus of children with, [von Sz. Szász] 308—ab
postvaccinal,[Ustvedt] 84—ab; [Van Rijssel] 242—ab; 280; [Grey] 453—ab; 738; [Tuthill] 1534—ab; 1848
postvaccinal, in infancy, 280; 1441
postvaccinal, prevention, [Ogrinz] 903—ab
postvaccinal, revision of vaccination law, Germany, 611
postvaccinal, therapy, [Grüneberg] 901—ab
treatment, transfusion, [Landon] 1531—ab
ENCEPHALITIS, EPIDEMIC, amyotrophic lateral sclerosis in, [Ornsteen] 1535—ab
chronic, bacteriology; treatment, [Stewart] 891—ab
in children, prognosis, [Howe] 1294—ab
sequels, pregnancy and parkinsonism, [Bland & Goldstein] ★473
sequels, use of stramonium in postencephalitic syndrome, [Jacobson] 1047—ab
ENCEPHALOGRAPHY: See Brain roentgen study
ENCEPHALOMYELITIS, rabies vaccine, human rabies and, [Bassoe] 296—ab
ENDAMEBA, histolytica, vs. emetine, [Miller] ★466
ENDAMEBIASIS, diagnosis complement fixation test, [Craig] ★10
ENDAORTITIS, polypous tuberculous, [Tavernari] 1626—ab
ENDICOTT Johnson Workers Medical Service, 1266—E
ENDOCARDITIS, acute bacterial, in infancy, [Sansby] 367—ab
bacterial, brain in, [Winkelman] 296—ab
brain: changes in, [Zolotowa] 635—ab
complicating scarlet fever, [Zischinsky] 377—ab
gonorrheal, with recovery, [Perry] 77—ab
lenta, 808
pneumococcus, *acute, after teeth extraction,* [Kapsinow] ★409
postpuerperal, 1689
rheumatic, in obstetric patient, [Herrmann & King] ★1472
subacute bacterial, complicated by pregnancy, [Kobacker] ★266
subacute bacterial, spleen changes in, [Fox] 1376—ab
ENDOCERVICITIS: See Uterus cervix
ENDOCRINES: See also Hormones; Pituitary Body; Suprarenals; etc.
bone diseases and, 1601; 1603
cancer and, 1189
coxa vara and, [Nyberg] 1140—ab
disorders, familial hypotrichosis due to, [Behdjet] 1054—ab
genital hypoplasia in female and, [Meaker] ★[illegible]
growth and distribution of hair relation to, [Cooper] 296—*ab*
imbalance, Bernard Piedelievre, Claude, biologic test of, 550
in general practice, [Sexton] 151—ab
influence in sterility, [Rowe] ★1219
malfunction in pelvic hypoplasia and delayed menarche, [Lawrence] ★1149
new physics, 1365—ab
renal system relation to, [Lebermann] 701—ab

ENDOCRINES—Continued
therapy of menstrual disorders, [Novak] ★1221
ENDOMETRIOSIS: See Endometrium, aberrant
ENDOMETRIUM, aberrant, [Keene & Kimbrough] ★1164
ENDOTHELIOMA cutis: naevo-xantho endothelioma, [Jacoby] 450—ab
of cauda equina, [Wakeley] 968—ab
ENEMA, Austin's Irrigators, 343
barium, ulcerated colon perforation from, [Kaulich] 1140—ab
mercurochrome, poisoning from, possible? 1691
soap suds, effects on rectum and colon, 1608
ENERGY and metabolism, 1402—ab
efficiency of human muscles, 799—E
metabolism, abnormal, 538—E
obesity caused by an overabundant inflow of, 36—E
outlets, adequate, for childhood, [Richards] ★1014
Radiant: See Radiant Energy
ENGINE, *steam*, compared *to* efficiency *of* human muscles, 799—E
ENGLAND: See also British
American students in medical schools in, 57
ENTAMEBA: See Endameba
ENTERITIS: See Intestines inflammation
ENTEROCOCCIC and para-enterococcic flora in infants, [Palesa] 632—ab
infection in brain abscess, [Coleman] ★568
ENTOMOLOGY, imperial conference, 210
ENTRANCE *Requirements: See Schools, Medical*
ENURESIS: See Urine incontinence
ENVIRONMENT, *thermal adjustment to,* [Cramer] 1458—ab
ENZYMES, lipase and protease ferments to confer immunity against tubercle bacilli [Fontella] 306—ab
mucinose in feces, 65
proteolytic, isolation of thyroxin from thyroid gland by action of, 939—E
EOSIN, irradiated, in pulmonary tuberculosis, [Hildebrand] 622—ab
methylene blue plates, liver agar as basis for, for cultivating brucella from stools and bile, [Amoss & Poston] ★482
EOSINOPHILIA, effect of sympathetic stimulation on leukocyte count, 807
hyperleukocytosis of tropical origin in 9 year old, [Armand-Delille] 696—ab
in trichinosis, [Carter] ★1420
persistent, [Drennan] 1946—ab
relation to asthma, 1119
EOSINOPHILS, behavior, in juvenile tuberculosis, [Belloni] 1056—ab
EPHEDRINE, as a habit forming drug, article in *Ladies Home Journal*, 731—E
dermatitis from sensitization to, used in nasal spray, [Ramirez & Eller] ★1082
Ephedrine Nasal Jelly-Maltbie, 200
hydrochloride, Capsules *Ephedrine Hydrochloride*-P. D. & Co., ¾ grain, 200
synthetic; *antagonistic action toward insulin,* [Brems] 312—ab
treatment in whooping cough and in asthmatic bronchitis, [Agrelo] 1626—ab
vs. epinephrine, German Pharmacologic Society discuss, 1114
EPICONDYLITIS humeri, [Stewart] 221—C
EPIDEMICS: See also under names of diseases as Diphtheria; Poliomyelitis; Typhoid; etc.
barometric pressure effect on, 739
maritime quarantine regulations, Turkey, 547
milk-borne, in rural areas, 1598
tick-borne, Marseilles, 1846
EPIDEMIOLOGY, neglected opportunities for study, [Bishop] ★563
EPIDERMOPHYTON interdigitale, urticaria and hay-fever from, [Wise & Sulzberger] ★1504
EPIDERMOPHYTOSIS and epidermophytids of hands, [Highman] ★1158
EPIDIDYMIS, blastomycosis, [Lewis & others] (correction), 56
diathermy of, technic, [Kowarschik] 311—ab
tuberculosis associated with renal tuberculosis, [Mombaerts] 972—ab
tuberculosis, treatment, [Felsenreich] 1058—ab
EPIDIDYMITIS, Gonorrheal: See Gonorrhea
nongonorrheal, pathogenesis, [Puhl] 84—ab
EPIGASTRIUM, pain, 1989
EPILATION: See Hair removal
EPILEPSY, 1277; [Blachford] 1536—ab
affectepilepsy and hystero-epilepsy, [Notkin] 1128—ab
blood calcium in, [Parhon] 560—ab
body fluid volume in, 1025—E
cerebrospinal fluid calcium in, [Parhon] 560—ab
cerebrospinal fluid pressure in, [Mayer] 379—ab
Colony, Michigan, 419
etiology, cerebral tumors, [Moniz] 1300—ab
fainting spells sign of congenital syphilis? 1608
functional, development and treatment, [Mauz] 158—ab
laboratory studies in, [Felsen] 1127—ab
marriage, contraindicated? 1761
Napoleon was not epileptic, [illegible]

EPILEPSY—Continued
  seizure, blood pressure during, [Hendriksen] 1706—ab
  seizures, dehydration to control, [Fay] 232—ab
  traumatic, fluid limitation and ketogenic diet in, [Palmer] ★197
  traumatic, structural basis of; surgical results, [Foerster] 1209—ab
  treatment, [Odena] 238—ab
  treatment, cured by attack of typhoid, 1113
  treatment, dehydration, [Fay] 232—ab; [Hall] ★708
  treatment, effect of intercurrent febrile disorders, [Guthrie] 1534—ab
  treatment, ketogenic diet, [Palmer] ★197; [Helmholz & Keith] ★707
  treatment, ketogenic diet, pellagra-like skin lesions due to, [Greer] ★863; [Guthrie] ★912
  treatment, narcosis, [Bleckwenn] ★1168
  treatment, oxygen, [Murphey] 626—ab
  treatment, phenobarbital, toxicity, 550
EPINEPHRINE antagonistic to ergotamine vs. respiratory quotient, [Capo] 1703—ab
  effect of sympathetic stimulation on leukocyte count, 807
  effect on blood acetone in fasting children, [Salomonsen] 1773—ab
  effect on cancer-sarcoma growth, [Sugiura] 1864—ab
  hepatic vein reactions in circulatory correlations to, 868—E
  in urethral applications, 1112
  inhalation vs. intratracheal injection, [Heubner] 238—ab
  injected intravenously, vagotrophic action, [Petzetakis] 828—ab
  injection, intracardiac, to control syncope in pneumothorax, [Bonanno] 1136—ab
  injection, intravenous, in severe asthma, [Kahn] 228—ab
  potency, 1979—E
  procaine hydrochloride solution for burns, [Novak] 1788—ab
  secretion effect on dextrose combustion, 344—E
  secretion: suprarenal function, 1506—E
  sensitiveness of women to, at menopause, [Myers] 624—ab
  test in hypertension, [Jensen] 1125—ab
  treatment of coronary thrombosis and complications, [Brown] 1049—ab
  treatment of progressive muscular dystrophy, [Kuré] 901—ab
  treatment of shock from rattlesnake bite, [Atchley] ★385
  treatment of splenectomized patients, [Greppi] 761—ab
  vs. ephedrine, 1114
EPIPHYSIS, of anterior superior spine iliac, avulsion, [Löhr] 699—ab
  separation due to muscular action, [Meyer] 626—ab
  separation of lesser femoral trochanter, [Lapidus] 825—ab
  streptococcal infections, [Phemister & others] ★995
EPISIOTOMY, indications, 432
EPISTAXIS: See Nose hemorrhage
EPITHELIOMA: See also Chorio-Epithelioma
  age and sex distribution, [Pack] 297—ab
  cells, fibril-forming power in tuberculous tissue, [Wallgren] 1060—ab
  cosmetics may produce, [MacKenna] 80—ab
  grading, [Caylor] ★1736
  of skin, radium for, [Ward] 1621—ab
  scalpel surgery for, [MacKee & Stone] ★1317
EPITHELIUM, ciliated, vs. expectorants, [Kochmann] 238—ab
  ossified, traumatic epithelial cyst on tip of tongue, [Pollack] 903—ab
EPSOM SALTS: See Magnesium sulphate
ERGOSTEROL, Irradiated: See Viosterol
  overdosage vs. reproductive function, [Centanni] 1783—ab
ERGOT, Ambruster, Rusby — and, ★722; 730—E
ERGOTAMINE, antagonistic to epinephrine, [Capo] 1703—ab
  tartrate, chemistry of ergot, ★725; 730—E
  tartrate effect on cardiac irregularities, [Brow & others] ★716
  tartrate, [illegible]
  —C; [illegible]
  tartrate [illegible]
ERGOTIS [illegible]
  oblite [illegible]
  ustilagi [illegible]
ERGOTOX [illegible]
ERROR [illegible]
[illegible] Schilling formulas in [illegible] [Nervi] 1383—ab
  [illegible]
  exanthematic fever of Toulon same disease as exanthematic fever of Marseilles? 869—E
  exanthematous fever and Weil-Felix reaction, [Plazy] 1212—ab
  mercury exanthems in children, [Jenny] 1998—ab
  "stomach rash," given in differential diagnosis of scarlet fever, 885
ERYSIPELAS, antitoxin, intramuscularly, as therapeutic measure, *[Ude & Platou] ★1*
  Antistreptococci Serum-Lilly (Concentrated Globulin), 1745
ERYSIPELAS—Continued
  convalescence, sudden death of new-born infant during, [Lucca] 376—ab
  prevention, 747
  streptococcus in, specificity, [Salazar] 1301—ab.
  therapeutic effect on pre-existing epilepsy, [Guthrie] 1534—ab
  treatment, more recent methods, [Ude & Platou] ★1
ERYSIPELOID infection from fish, [Ritchie & Becker] ★26
  treatment, irradiated substances, [Ried] 1218—ab
ERYSIPELOTHRIX suis, [Ritchie & Becker] ★26
ERYTHEMA induratum, gold sodium thiosulphate dosage in, 885
  infectiosum, [Rietschel] 82—ab
  nodosum, etiology in children, [Dickey] 1531—ab
ERYTHREMIA: See Polycythemia
ERYTHROCYTES, basophilic substance of, [Davidson] 827—ab
  chlorine in, [Dumas] 1055—ab
  destruction, relation of spleen to jaundice, [Payne] ★1064
  in icterus neonatorum, 1747—E
  resistance in skin capillaries, [Montanari] 1625—ab
  response of reticulocytes and, [Mettler & others] ★1090
  sickle cell phenomenon, 416—E
  size in anemia, [Murphy] 1375—ab
  suspension stability, Fahraeus's test for, [Crocket] 1380—ab
ERYTHRODERMIA desquamativa, assimilation of fats in infants with, [Dessylla] 305—ab
ERYTHROLEUKEMIA myelosis in infant, [Sorrentino] 457—ab
ESCHERICHIA coli, behavior in urine, [Frisbie] 231—ab
ESKIMO, is meat diet a menace? 866—E; [Falcon-lesses] 1445—C; [Moulton] 1762—C
ESOPHAGITIS: See Esophagus inflammation
ESOPHAGOPLASTY, [Pokotilo] 1788—ab
ESOPHAGUS, anomalies, congenital, [Friedenwald] ★906
  cancer, concealed forms, [Bonnamour] 1381—ab
  cancer; precancerous changes [Schaer] 562—ab
  cancer, radium etc., for, [Dufourmentel] 1211—ab
  diaphragmatic hernia into esophageal opening of diaphragm, [Frimann-Dahl] 978—ab
  dilatation, Heyrovsky's operation for [Haggstrom] 1790—ab
  diverticulum, [McGee] 76—ab; [Zukschwerdt] 700—ab; [Becking] 140—ab
  inflammation; diagnosis of esophagitis dissecans, [Billmann] 638—ab
  mega-esophagus, [Guns] 1382—ab
  stricture, [Pokotilo] 1788—ab
  traumatic perforation with mediastinitis, [Meyersburg] ★1341
  visualized, in differentiation of lesions of right and left heart, [Rigler] 443—ab
ESTRIN, clinical experiments, [Dodds] 454—ab
ESTRUATION: See also Ovulation
  lactation effect on, [Cunningham] 1621—ab
ETHER Anesthesia: See Anesthesia
  action on human uterus, [Bourne] 827—ab
  Gerota's fluid to demonstrate lymphatic system in cadavers, 747
  plus magnesium carbonate, to remove cod liver oil stains, 953
  treatment, rectal, in whooping cough, [McGee] 966—ab
ETHICS, MEDICAL: See also Privileged Communication; Testimonial
  advertising and the doctor, 811; 1267—E; 1268—E
  advertising, professor censured for, France, 1276
  A. M. A. Judicial Council report on original jurisdiction and responsibility, 45
  ethical aspects of sexual sterilization, 1282
  ethical order of physicians, proposed, Belgium, 1032
  of fellows of Royal College of Surgeons, 1517
  physicians' court of, Turkey, 1984
  rights of physicians in choice of residence, 1035
ETHYL carbamide, Aufrecht's method of treating pneumonia, 1283
  chloride, [Henderson] 962—ab
  chloride, Somnoform, [Henderson] 1445—C
  gasoline, regulation concerning, by U. S. Health Service, 209
ETHYLENE Anesthesia: See Anesthesia
ETHYLHYDROCUPREINE hydrochloride in pleurisy in infants, [Acuna] 1057—ab
  in pneumococcal meningitis, [Navarro] 1460—ab
*di*ETHYLPHTHALATE in toilet water cause of dermatitis, [Lane & Strauss] ★717
EUCALYPTOL, Chloretone, Inhalant Chloretone, Creosote and Eucalyptol-Sorensen, 729
EUCALYPTUS Ointment, Deo Dennis, 430—BI
EUGENICS: See also Genetics
  at the Church Congress, 1357
  birth rate and, 1520
  improvement of the race, 1109
EUPHORIA, alcohol in therapeutics, 672
EVANS MEMORIAL, study of sterility and menstrual disorders, [Lawrence] ★1148
EVE, PAUL FITZSIMMONS, A. M. A. representative at memorial services for, 206
EVIDENCE: See also Medicolegal Abstracts at end of letter M
  expert testimony, Italian Congress of Legal Medicine discusses, 809
  testimony, methods of invisible writing, [Langen] 1628—ab
  testimony of physicians, 1922
EVOLUTION: See also Anthropology
  pages are missing everywhere, 729—ab
EWALD Test Meal: See Stomach contents examination
EXAMINATION: See also Army, U. S.; Health, U. S. Public Health Service; National Board of Medical Examiners
  for doctorate in medicine, 1439
  for License: See State Board
  Physical: See Physical Examination
EXAMINERS: See American Board of Examiners of Obstetrics and Gynecology
  Medical: See Coroner
EXANTHEM: See Eruptions
EXECUTION: See Death penalty
EXERCISE: See also Athletics; Exhaustion; Fatigue; Physical Education
  cardiac output in heart disease, 1025—E
  diastolic blood pressure after, [Schellong] 1217—ab
  menstruation and light sports, 424
  muscular, effect on production of basal heat, [Wang] 690—ab
  oxygen consumption after, [Jahn] 1785—ab
  tetany after, [Lawrence] 1131—ab
  therapeutic apparatus to decrease postoperative thrombosis, [Braithwaite] 1298—ab
  therapeutic effect in dysmenorrhea, [Miller] ★1796
  therapeutic, technic, [Coulter & Molander] ★1342
EXHALE: See under Respiration; Expiration
EXHAUSTION, hypothyroidism, [Warfield] ★1076
EXHIBIT: See also Art
  of A. M. A.: See A. M. A.
  scientific and medical displays at state meeting, Indiana, 1353
  traveling hygienic museum, 880
EXOPHTHALMOS: See also Goiter, Exophthalmic
  acute, after influenza [Gross] 378—ab
  pulsating, [Hanford] 622—ab
EXPECTORANTS: action on ciliated epithelium, [Kochmann] 238—ab
EXPERIMENTATION: See also Animal Experimentation; Research; and under names of diseases
  method in modern medicine, [Babkin] 1376—ab
EXPERT: See Journals
EXPERT TESTIMONY: See Evidence; Medicolegal *Abstracts at end of letter M*
EXPIRATION: See Respiration
EX-PRESIDENTS: See American Medical Association
EX-SERVICE MEN: See Veterans
EXSICCOSIS, so-called, encephalitic changes in brain in, [Goldzieher] 700—ab
EXTENSION work in medical education, [Bardeen] 755—ab
EXTRAPYRAMIDAL disease, ramisection in, [Symonds] 758—ab
  origin, dystonias of, [Néri] 1948—ab
EXTRASYSTOLES: See Arrhythmia
EXTREMITIES: See also Amputation; Arms; Fingers; Foot; Hand; Leg; Paraplegia; Varicose Veins; etc.
  arteriography, value, [Charbonnel] 235—ab
  burns, late treatment, [Brown] 154—ab
  circulatory disorders, "nail symptom" [Schlesinger] 902—ab
  embolism of arteries, [Marcus] 700—ab
  gangrene, latent gas bacillus infection complicating, [Linton] ★183
  gangrene of lower, surgery of diabetes for, [Maes] 1943—ab
  hemangiectatic hypertrophy of limb, [Harris] 373—ab
  lesions of lower in diabetes, [McKittrick] 1863—ab
  lipodystrophy (progressive), [Smith] 368—ab
  Paralysis of: See Paralysis, obstetric; Paraplegia
  Raynaud's disease, of upper, thoracic sympathectomy cures, [Kolodny] ★1020
  vascular disease, obliterative, [Smithwick] 1208—ab
EYE GLASSES: See Glasses
EYEDNESS vs. handedness, [Quinan] 623—ab
EYELID, functional synergy of mastication and elevation of, [Amat] 1384—ab
  trichinosis and, [Carter] ★1420
  tumor, malignant melanoma, [Heinonen] 638—ab
EYES: See also Aqueous Humor; Blindness; Nerve, optic; Ophthalmia; Ophthalmology; Vision; and Medicolegal Abstracts at end of letter M
  anatomy, 1608
  complications from vaccine, [Toulant] 1381—ab
  disease, tuberculin for, [Wilkinson] 453—ab
  disease in childhood, [Safar] 1953—ab
  effect of tinted glasses, [Fink] 1207—ab

EYES—Continued
  examination in brain abscess, [Coleman] *568
  examination (microscopic) showing acute tuberculous iritis, [Verhoeff] *583
  examination, prism-refractometer, 1117
  hemorrhage in Schönlein-Henoch's purpura, [Benedict] *1577
  injuries from skiing, [Strebel] 236—ab
  injuries, survey, 943
  manifestations in trichinosis, [Carter] *1420
  muscle imbalance, 1989
  neuroses, "eyestrain," [Derby] *913
  of aviators, England, 1514
  orbital cellulitis in children, [Smith] 628—ab
  paralysis of motor nerves, [Cornil] 1211—ab
  protecting them from glare, glasses for, [Coblentz] *593
  sound eye needs no protection against ultraviolet rays, [Fink] 1207—ab
  "specialists," 134; 272; 803
  treatment in taboparesis, 747
  tumor, metastatic melanoma, [Cordes & Horner] *655
  tumors, [Cary] *1806
EYESTRAIN, [Derby] *913

F

FACE: See also Cheek; Jaws; Lips; Mouth; etc.
  diplegia after antirabic treatment, [Marque] 166—ab
  eczema from quinine in shaving lotions, [Burgess] 691—ab
  expression, symptom of heart disease, [Jarotzky] 1214—ab
  new mask that protects both physician and patient, [Mellinger] *662
  pallor in postoperative death in infants, [Riser] 972—ab
  paralysis and chronic nephritis, [Vinard] 1055—ab
  paralysis, symptom, [Wartenberg] 1462—ab
  spasm, 818
  tuberculosis in Nigeria, [Smith] 163—ab
  wound, control of hemorrhage during boxing match, 953
FACTORIES: See Industrial
FACULTY OF MEDICINE, Paris, new dean of, 424
  diplomas issued by, France, 1925
  securing title of foreign assistant at, France, 739
FADS, food, [Stone] *713
FÄHRAEUS'S Test for suspension stability of erythrocytes, [Crocket] 1380—ab
FAGUIOLI'S-Ascoli's pituitrin test, 550
FAINTING: See Syncope
FAIR, state, exhibit, California, 1270
  state, health program, Nebraska, 1027
FALLOPIAN TUBES: See also Uterus adnexa
  cancer, primary, [Gallagher] 152—ab; [Holland] 1943—ab
  excision, operation to overcome sterility after, 817
  insufflation, [Sellheim] 633—ab
  occlusion of lumen, [Watkins & Menne] *1647
  patency, tests, 1931
  strictures located by insufflation and kymograph, [Rubin] 754—ab
  tuberculous salpingitis; Besredka reaction in diagnosis, [Douay] 759—ab
FAMILY, incidence of juvenile rheumatism, [Hill] 80—ab
  neurosyphilis in, [Dennie] *1571
  open pulmonary tuberculosis in, [Hartmann] 977—ab
  prizes to women with six children, Turkey, 1984
FAMINE edema, [Aykroyd] 1131—ab
FANO, GIULIO, death, 1438
FANTAN, *liver atrophy from, [Rabinowitz] *1229*
FAR EAST Association of Tropical Medicine, 1360
FARADAY, MICHAEL, centenary, 806
FARASTAN, liver atrophy from, Rabinowitz] *1229
FARINA in ideal cereal mixture, [Tisdall] 1773—ab
FASCIA, for repair of inguinal hernia, [Pettit] *1497
  grafts, free, [Haas] 371—ab
  lata, for repair of diastasis of abdominal rectus, [Abrashanow] 1305—ab
FASHION of women's clothes and breast prolapse, [Farrar] *1329
FASTING: See also Starvation
  blood acetone in, vs. insulin and epinephrine, [Salomonsen] 1773—ab
  days, disapproved, 677
FAT: See also Acid, fatty; Lipoids; Oil
  assimilation in infants, with erythrodermia desquamativa, [Dessylla] 305—ab
  atrophy from insulin injections, [Nichols] 445—ab
  autotransplantation in mammary gland atrophy, [Passot] 375—ab
  conversion into carbohydrates, 1508—E
  diet, high, physiologic and clinical effects, [Higgins] 826—ab
  dietary facts, [Stone] *711
  diets, high, effect on growth of cancer and sarcoma, [Sugiura] 298—ab
  distribution in abdominal skin, [Plaschkes] 901—ab
FAT—Continued
  dystrophy from insulin injections, [Reed & others] *395; [Rathery] 972—ab
  dystrophy (progressive) of lower extremities, [Smith] 368—ab
  eat and grow fat, 1182—E; 1507—E
  endogenous eczematoid dermatitis due to, [Ramirez & Eller] *1083
  importance in ketogenesis in diabetic and in normal, [Kalf-Kalif] 764—ab
  in Blood: See Blood
  irradiated, in surgical conditions, [Ried] 1218—ab
  metabolism, 269—E
  metabolism and lungs, 800—E
  necrosis of breast, [Brancati] 1540—ab
  powder or, in care of infant's skin, [Bayer] 1998—ab
  traumatic proliferation of subpatellar fatty tissue, [Sicard] 972—ab
FATHER: See Paternity
FATIGUE: See also Exhaustion
  bismuth subnitrate in treatment of arterial hypertension, [Stieglitz] *842
  cardiac decompensation caused by, [Boller] 633—ab
  determination in pulmonary tuberculosis, [Stein] 241—ab
  economic results of modern treatment of diabetes, [Bowen] *565
  [illegible], [Moleen] *910
  [illegible] 076
[illegible], ALPHONSE, [illegible]
FEAR is a *mental deformity*, 1472—ab
  long-continued terror, cardiac symptoms due to, [Stoll] 443—ab
FEATHER asthma, [Feinberg] *1668
FECES, acids in, vs. feeding of infants, [Gerstley] 689—ab
  appearance after iron therapy, 955
  bismuth in, [Hanzlik] 1533—ab
  blood (dark tarry) in, sign of bleeding high up in gastro-intestinal tract, 1691
  defecation controlled by surgical pituitary extract, [Sophian] 894—ab
  examination for Ascaris lumbricoides, [Otto] *194
  examination for brucella, [Amoss & Poston] *482; [Leavell & others] *860
  examination in amebic infections, [Craig] *10
  hemorrhagic steatopancreatic necrosis, [Scaglia] 1216—ab
  lead in patients injected with colloidal lead, [Newman] 629—ab
  mucin shreds, origin, 65
  nitrogen in vs. types of feeding, [Simonini] 1057—ab
  occult blood in, in intestinal cancer, [Dahl-Iversen] 702—ab
FEEBLEMINDED: See Mental Defectives
FEEDING: See also Diet; Food; Infants, feeding; Nutrition; etc.
  gastric, for cardiospasm, [Einhorn] 228—ab
FEES: See also Income; Medical Service
  charge for use of radium in uterine hemorrhage, 816
  hospital, and business depression, 1360
  losses by physicians and dentists due to bad accounts, 602
  medical school, *506; 535—E
  of Board of Otolaryngology increased, 275
  physicians demand increase in, 674
  Robinson National Clearing Company, Inc., 1853—BI
  rules of Royal College of Surgeons regarding, 1517
FEET: See Foot
FELLOWSHIPS: See also Scholarships
  Anasarcin Chemical Company, for study of squill compounds, 418
  Beit, 672
  Billings, at Rush, 136
  Brown Orthopedic Research Fellowship, 420
  Chemical Foundation, 136; 1180—E
  Ciba, in pharmacology, 734
  Eli Lilly, in Pacific Institute of Tropical Medicine, 734
  Institute for Child Guidance, in psychiatry and psychology, 209
  National Committee for Mental Hygiene, in extramural psychiatry, 1597
  Rosenwald Fund has awarded, to Dr. Franz Alexander of Berlin gift to University of Chicago, 418
  Royal College of Surgeons, examination to be held in Australia, 1517
  Sealy and Smith Foundation, in roentgen ray, 943
FELONS: See Paronychia
FELTON'S SERUM in pneumonia, 935, [Cecil & Plummer] *1550
FEMALE SEX HORMONE. See Ovary hormone; Sex hormone
FEMUR, fracture, diaphysary, Muzii reduction *method for,* [Benedetti-Valentini] 697—ab
  fracture, intracapsular, of neck, [Moorhead] *1494
  fracture, intracapsular, of neck, changes in head after, [Santos] 1293—ab
  fracture of neck, [Wilson] 1615—ab
  fracture of neck, fixation by screws, [Bloch] 1624—ab
  fracture, skeletal traction for, [Clayton] 967—ab
FEMUR—Continued
  fracture, traction method for, [Moorhead] *1495
  fractures from crushing of acetabulum, with intrapelvic dislocation of head, [Truzzi] 1872—ab
  sarcomas, [Behring] 702—ab; [Willan] 1868—ab
FENHOLLOWAY Sulphur Springs Water, 952—BI
FENTON, RALPH, elected to editorial board of *Archives of Otolaryngology*, 206
FERMENTS: See Enzymes
FERRIC Subsulphate: See Iron and Iron Compounds
FERTILITY, endocrine influence in, [Rowe] *1219
  of tuberculous women, [Matthews & Bryant] *1709
FETUS: See also Abortion; Embryology; Infants, new-born
  blood in, iso-agglutinin content, [Hamberger] 1464—ab
  blood volume in, at term, including umbilical cord and placenta, 1039
  cephalometry, [Thoms] *21
  death of: See also Stillbirths
  death of, causes, [Puccioni] 697—ab
  disproportion and contracted pelves, [McGoogan] 1454—ab
  heart beat, irregularities, determined by phonocardiogram, [Hyman] 1453—ab
  how long after compression of umbilical cord *will a six months fetus in utero live? 1039*
  injurious effect of temporary castration in women on, 142
  liver hypertrophy of, causes dystocia, [Hagstrom] 78—ab
  liver of, desiccated, for secondary anemia of hemoglobin deficiency type, [Giffin & Watkins] *588
  meconium peritonitis from spontaneous perforation of ileum in utero, [Boikan] 370—ab
  membranes, inflammation, [Summerill] 230—ab
  oxygen capacity and saturation of, [Goldbloom] 963—ab
  papyraceus, ectopic, expelled expulsion after uterine curettage, [McFadyean] 1132—ab
  radiation of pelvis effect on, [Findley] *857
  retention for 26 months, [Lichtwardt] 624—ab
  roentgen study, [Mences] 1861—ab
  tuberculosis in, [Nystrom] 621—ab
  typhoid in, [Wing & Troppoli] *405
FEVER: See also Temperature, Body, high
  after tonsillectomy, 817; [Kaiser] *838
  antipyretic action of carbon compounds, [McDowall] 827—ab
  as postoperative reaction, [Bereeanu] 1381—ab
  attacks before and after tonsillectomy, [Kaiser] *838
  Blackwater: See Blackwater Fever
  catamenial, in tuberculosis, 271—E
  Cerebrospinal: See Meningitis, cerebrospinal
  continued, due to Gärtner-like salmonella of type Dublin, [Smith] 162—ab
  exanthematic, of Toulon, same disease as exanthematic fever of Marseilles? 869—E
  exanthematous, and Weil-Felix reaction, [Plazy] 1212—ab
  high, nonfatal, of 108 F. after prostatectomy, [Dakin] *1824
  in multiple sclerosis, [McKenna] 1292—ab
  intradermal salt test in, [Duden] 419—ab
  menstrual, in tuberculosis, [Jameson & others] *13; [Weiss] 78—ab; 271—E
  nostrum, Mendenhall's Chill and Fever Tonic, 1038—BI
  nostrum, Pneumo-Phthysine, 1606—BI
  Parrot: See Psittacosis
  Rat-Bite: See Rat-Bite Fever
  Relapsing: See Relapsing Fever
  Therapeutic: See also Malaria, therapeutic
  therapeutic effect on preexisting epilepsy, [Guthrie] 1534—ab
  therapeutic, produced by baths for intermittent claudication, [Mehrtens & Pouppirt] *1910
  therapeutic produced by milk injected intramuscularly tic douloureux, [Ball] 891—ab
  therapeutic, produced by Spirochaeta hispa*nicum, [Remlinger] 455—ab*
  therapeutic, produced by sulphur in olive oil, [Shilvock] 1132—ab
  therapeutic, protein therapy, [Miller] *465
  Undulant: See Undulant Fever
FIBRIL-forming power of epithelioid cells in tuberculous tissue, [Wallgren] 1060—ab
FIBRINOGEN and liver, 869—E
  of breast, [Bevan] *1312
  plasma, index of rheumatic infection, [Ernstene] 444—ab
  scalpel surgery for, [Mackee & Stone] *1317
FIBROBLASTS, effect of diet on growth, 1183—E
FIBROIDS of uterus, pelvic irradiation, [Findley] *857
FIBROMA: See also Chondrofibroma
  of ovary with properitoneal cyst, [Martzloff] 78—ab
  of uterus, hysterectomy for, [Fullerton & Faulkner] *1563

FIBROMA—Continued
  polypoid, of left auricle causing ball-valve action, [Houck] 1126—ab
  scalpel surgery for, [MacKee & Stone] ★1317
FIBROMYOMA, expulsion, after abortion, [Borochowitsch] 1464—ab
  of urachus, [Brady] ★338
  of uterus, [Keene] 1203—ab
FIBROSARCOMA of nasopharyngeal cavity, 878
FIBROSES, cardiac, 1675—E
FIBRO-XANTHOMA, scalpel surgery for, [MacKee & Stone] ★1317
FIBULA, transplantation of head and shaft to humerus, [Behrend] 1944—ab
FIFIELD, JAMES C., "American Physicians and Surgeons," 614
FILAMENT, normal, polymorphonuclear neutrophil count, [Farley] 1289—ab
FILENE, E. A., plan for medical guilds, 1266—E
FILIPINOS: See also Philippine Islands
  basal metabolism of, [Ocampo] 1942—ab
  meningitis in, on ships from Orient, 537—E
FILM on tissue cultures, 1603
FILMS: See also Motion Pictures
  in cancer campaign in Ukraine, 1519
  Lewis-Gregory, of fertilized eggs, leukocytes and tissue cultures, 1509—E
  medical, for loan, by University of Virginia Medical School, 1597
  of organs in motion, 217
  roentgen speech film, International Society of Experimental Phonetics, 873
  talking, A. M. A. resolution on use in medicine, (V.94) 2074; 44; 748; 1103
FIFTH DISEASE, is it a disease entity? [Rietschel] 82—ab
FILTRABLE VIRUS: See Virus
FILTRATES, gland, autogenous, use in Hodgkin's disease, [Hanrahan] 623—ab
  liquid, cultures from scarlet fever patients, 673
  staphylococcus, in staphylococcic infections, [Greenbaum & Harkins] 815—C
FINGER PRINTS, to determine paternity, [Mau] 1704—ab
FINGERS. See also Hand; Nails; Phalanges
  Dupuytren's contracture, [Oehlecker] 899—ab; [Ritter] 1952—ab
  eczema, 289
  injury, meningeal spirochetosis from, [Troisier] 1870—ab
  polydactylism, [Wiener] 431—C
  restoring thumb, [Gueullette] 1299—ab
  snapping thumb, [Ottendorf] 701—ab
  suppurations, treatment, [Sokolov] 1542—ab
  syndactylism, [Davis] 623—ab
  vasodilatation due to cold, [Lewis] 374—ab
FINIKOFF'S METHOD, in surgical tuberculosis, [Zalewski] 760—ab
FIRE, effect on skin temperature of steel workers, [Bloomfield] 161—ab
FIREWORKS, poisoning in children, [Aikman] ★1662
FIRST AID: See also Emergency
  at children's playgrounds, 1032
  for drowned persons, [Thiel] 377—ab
  train, 809
FISH bone, duodenum and liver perforated by, [Douglas] ★265
  eating dogs and bears, broad tapeworm in, [Vergeer] ★1579
  erysipeloid acquired from, [Ritchie & Becker] ★26
  extracts, sensitivity to, [Ramirez & Eller] ★1082
FISHER, R. B., 1116—BI
FISHER FOUNDATION: See Foundations
FISSURE: See *Anus*
FISTULA, abdominal, treatment, 432
  arteriovenous, effects on circulation, [Ellis] 443—ab
  arteriovenous, in multiple aneurysms, [Wilbur] 891—ab
  biliary, after cholecystectomy, [Lahey] 1777—ab
  duodenal, [Gilbride] ★259
  duodenal, after suture of perforated ulcer, [Moulonguet] 1055—ab
  of hip joint, [Pflomm] 831—ab
  pancreatic, [Fast] ★1668
  ureteroperitoneal, [Hunner & Everett] ★327
  vesical, electrocoagulation for, [Ottow] 381—ab
  vesicocervical, electrocoagulation for, [Gottlieb] 381—ab
  vesico-umbilical, urinary, [White & Holm] ★393
  vomitus reinjected into lower bowel through, in high intestinal obstruction, 414—E
FLAME, gas, radiations from, [Coblentz] ★412
FLASK connectors, rubber, [Pottenger] ★1503
FLATFOOT: See Foot
FLATULENCE, carminative action of onion, 1284
FLEISHMANN'S YEAST: See Yeast
FLEXNER'S serum injected into cistern magna in meningitis, [Stookey & others] ★106
FLICKER hemoglobinometer, [Jenkins] 1297—ab
FLIGHT: See Aviation
FLIT, sensitivity to, [Ramirez & Eller] ★1082
FLOOD fever, virus, new method for demonstrating, [Nagayo] 1210—ab
FLOUR: See Bread; Crackers; Wheat
FLOWERS, ultraviolet ray garden of, 211
FLU-CAPS, 1195—BI
FLUID: See also Body fluids; Edema
  Gerota's, 747
  intake, effects on body weight, 217
  limitation in traumatic epilepsy, [Palmer] ★197
FLUIN, 883—BI
FLUKE in shrimps, [Du] 827—ab
  liver, vs. primary liver cancer, [Strong] 691—ab
FLUORESCEIN, sodium, diagnostic value in meningitis, [Bonar] 1373—ab
FLUORESCENCE spectrums of carcinogenic substances, [Kennaway] 373—ab; 423
FLUOROSCOPE: See Roentgen Rays
FLY: See also Tsetse fly
  deer fly, hosts of tularemia, 667—E
FOIL, metal, irradiated, in surgical conditions, [Ried] 1218—ab
  silver, for burns, [Pfab] 459—ab
  tin, danger of wrapping cheese in, 1188
FOLEY'S Cold and Grippe Tablets, 1606—BI
FOLIN, OTTO, awarded Scheele Medal, 1921
FOLLICULAR fluid, hormonotherapy with, [Maurizio] 828—ab
FONTANEL area, viosterol effect on, [Hess & others] ★321
FOOD: See also Cereals; Cooking; Diet; Digestion; Feeding; Fruit; Meat; Nutrition; Vegetables; Vitamins
  acid-ash elements, [Stone] ★711
  allergies, in breast-fed infants, 1593—E
  allergy, 817
  allergy and pollen hay-fever, [Rowe] 1456—ab
  allergy, cause paroxysmal tachycardia? [Luria] 1385—ab
  allergy, headache from, 551; [Balyeat] 891—ab
  allergy, oral method of desensitization toward, 214
  allergy; sensitization as determined by skin testing, [Stier] 967—ab
  allergy, toxemia and migraine from, [Rowe] 1995—ab
  A. M. A. Committee on Foods, 43; 50; 206
  A. M. A. Committee on Foods, preservation of antiscorbutic vitamin, 114—E
  Ball: See Phytobezoar
  canned, Alp Rose Canned Foods, 486
  canned, paratyphoid bacilli survival in, [Doyle] 1206—ab
  canned tomato juice, vitamin C in, 614
  canned tomatoes (home), vitamin F in, 682
  canned, vitamins in, 1933
  content vs. density and composition of urinary stone, [Grant] 626—ab
  Curtice Brothers Certified Nursery Foods, 486
  deficient in calcium and phosphorus cause osteitis fibrosa, 1601
  digestion of various foods, [Childrey] 1374—ab
  effect of habitual use of aluminum baking powders on utilization, [Kraft] 753—ab
  faddists, 348; 913
  fads and fancies and the newspapers, [Stone] ★713
  goiter problem solution and, [Weston] 161—ab
  handlers, examination, 1271
  man chooses, 1636—ab
  poisoning, 36—E
  poisoning, outbreak, Staffordshire, [Clayton] 1945—ab
  poisoning traced to pie, 1679
  purine constituents in, [Stone] ★712
  restricted and allowed for gout patients, [Stone] ★712
  specialist, Paul O. Sampson, 144—BI
  stimulants, gallbladder emptying induced by, [Bronner] 459—ab
  vitamin content of, and variation in soil, 1040
FOOT: See also Ankle; Heel; Reflex, plantar; Shoes; Toes
  acanthosis nigricans of soles, 145
  circulation in diabetes, [Starr] 891—ab
  clubfoot, congenital, neuromuscular changes, [Dittrich] 1376—ab
  cysts of long bones, [Platt] 968—ab
  drop, 1933
  flatfeet, 1933
  flatfoot, static, rheumatism as cause of, [Saxl] 1387—ab
  joint tuberculosis, [Sinding-Larsen] 978—ab
  measurements, survey, 945
  pain, diagnosis, 615
  pigmented mole of sole resulting in melanotic sarcoma, [Kurtz] ★1586
  races, avulsion of epiphysis of anterior superior spine iliac in, [Löhr] 699—ab
  ringworm, treatment, 433
  supernumerary, [Mayer] 825—ab
  sweating of soles, 347
  temperature, protracted postoperative effect on arteries, [Ipsen] 461—ab
FOOT-AND-MOUTH-DISEASE, [Mollow] 377—ab
FORAMEN ovale, normal closing time, [Christie] 1126—ab
FORCEPS, togglesqueeze hemostatic, [Littlejohn] ★1975
FOREARM, treatment of chronic eczema, 955
FOREIGN Language: See Translators
FOREIGN BODIES: See also Bladder; Intestines; Stomach; etc.
  from toys swallowed by children, A. M. A. resolution on, (V. 94) 2073
  in air passages producing valvular obstruction, [Jackson] ★639
  in elbow joint, [Kirby] ★404
  fishbone perforates duodenum and liver, [Douglas] ★265
  laryngeal obstruction from, [Richards] ★767
  toothpick perforates cecum, [McLanahan] ★1421
FOREIGNERS mentally ill, in France, 544
FORENSIC MEDICINE: See Medical Jurisprudence; Medicolegal; Medicolegal Abstracts at end of letter M
FORKOLA JELL, 883—BI
FORMS, "radium national forms," 671
FOSSILS, Peking man, 1358
FOUNDATIONS, Better Health Foundation of California, [Coffey] 1376—ab
  Chemical Foundation gift for study of common cold, 1271
  Chemical Foundation to provide fellowships in chemistry, 136; 1180—E
  Da Costa Foundation, county society and graduate teaching, 1513
  Hooper Foundation research on mussel poisoning, 1750
  James D. Phelan Foundation, million for sick poor, 1026
  Johnson Foundation for Medical Physics, [Hill] ★1394
  Kellogg Child Welfare Foundation, 1751; 1923
  Lasker Foundation, patients desired for study of pneumonia and hypertension, 1677
  Mack Foundation, for study of cancer, 134
  Martha H. Beeman Foundation finances child guidance clinic, 1512
  Mary Fisher Foundation, county society and graduate teaching, 1513
  Robinnette Foundation, research on heart disease, 1273
  Rockefeller: See also General Education Board
  Rockefeller Foundation, Dr. Gregg to be director of medical sciences, 1679
  Rockefeller Foundation, changes in staff, 135
  Rockefeller Foundation, gift to University of Sydney, 736
  Rockefeller Foundation gives buildings to Kai-[illegible] 676
  [illegible] ant for study of [illegible]
  Rosenwald Foundation cooperating in syphilis control demonstration, 1753
  Rosenwald Foundation fellowship to Dr. Alexander, 418
  Rosenwald Foundation gift to Institute of Mental Hygiene, 1272
  Rosenwald Foundation, nursing for families of moderate means, 1184
  Sealy and Smith Foundation, fellowship in roentgen ray, 943
FOUNTAINS: See Soda Fountains
FOURTH DISEASE, a disease entity? [Rietschel] 82—ab
FOURTH OF JULY fireworks, poisoning in children, [Aikman] ★1662
FRACTURES: See also Elbow; Femur; Hip Joint; Humerus; Spine; Splints; etc.
  apophyseal incomplete, 1111
  behavior of calcium and phosphorus, [Bellelli] 1215—ab
  bone resorption (complete) after, [Rothermel] 831—ab
  callus formation delayed in lead poisoning, 884
  callus formation, roentgen rays effect on, [Fukase] 241—ab
  consolidations, vicious, surgical interventions in, [Cattaneo] 237—ab
  dressings for, exsiccated alum, [Benatuil] 1301—ab
  erythrocyte sedimentation reaction in, [Madlener] 900—ab
  exhibits by state societies, 206
  fixation by screws, [Bloch] 1624—ab
  healing, vs. x-rays, [Schneller] 831—ab
  multiple, in new-born, [Inglis] ★1262
  of long bones, treatment, [Birt] 1784—ab
  refracture at point of old fractures, in poliomyelitis, [Tumpeer & McNealy] ★19
  treatment, noneffect of viosterol, [Lewis] 1292—ab
  treatment, regional anesthesia in, [Highsmith] 1129—ab
  ununited, rehabilitation of disabled, [Mock] ★31
FRANK, ROBERT *F., gives first Harvey Lecture,* 1106
FRANK TEST for female sex hormone, [Spencer] 1203—ab
FRAUDS: See also *Impostors*
  fifty dollars for your biography in print, 209
  magazine solicitors, 872; 1923
  salesman victimizes physicians, Colorado, 870
FREEZING: See also *Frozen*
  hazard of antifreeze mixture (methanol) in automobile radiators, 664—E
  of sciatic nerve for juvenile gangrene, [Läwen] 1462—ab

FRENCH Academy of Medicine: See Academy of Medicine
  Congress of Hygiene, 1600
  Congress of Legal Medicine, 808
  Congress of Orthopedics, 1846
  Congress of Otorhinolaryngology, 1924
  Congress of Plastic Surgery, 1358
  Congress of Surgery, 1029
  Congress of Urology, 1029
  League against cancer, 674
  physicians, general association of, 353
  Society of Reparative, Plastic and Aesthetic Surgery, 873
  Surgical Society, meeting, 1516
FRESHMAN: See Students, Medical
FREUD, SIGMUND, awarded the Goethe prize, 1108
  [illegible] discuss psy-
  [illegible] ternal secre-
  676
FRIGHT: See also Fear and under Medicolegal Abstracts at end of letter M
  effect on gastro-intestinal tract in psychoneuroses, [Moleen] ★910
FRIGIDITY, female, congenital and hereditary, treatment for, 1445
FRONTAL SINUS conditions, iodized oil in diagnosis, [Goodyear] ★1002
  infection, resulting osteomyelitis of skull, [Woodward] ★927
FROST bites, irradiated substances for, [Ried] 1218—ab
FROZEN: See also Freezing
  section technic, staining tubercle bacilli in tissues cut by, [Moss] 627—ab
FRUIT: See Apples; Lemons; Oranges; etc.
  Alp Rose Canned Foods, 486
  citrus, canned, vitamins in, 1933
  Kiddie Kanned Vegetables, Fruits and Cereals, 865
  prohibited in diet of allergic conditions, [Beckman] ★1582
  ultraviolet ray garden of, 211
  United Fruit Company, report, 1108
  value in scurvy in adults, [Mettier & others] ★1089
  value in sprue, [Bassler & Lutz] ★1961
  Van Camp's Puréed Fruits and Vegetables, 486
FUCHS reaction, in cancer, [Wright] 963—ab
FÜLLEBORN, FRIEDRICH, 611
FÜRBRINGER, PAUL, death, 677
FULGURATION, treatment of skin diseases, 222
FULTON, JOHN FARQUHAR, 1432
FULTON'S Compound, 745—BI
  [illegible]
[illegible] due to carelessness
[illegible]; Yeast
  diseases of tonsils (tonsillomycoses), [Castellani] 560—ab
  imperfecti, [Stokes & others] ★14 (correction) 209
  in [illegible] ir, reagent for [illegible] ★1743
  in [illegible]
  piedra, [Aars] 1205—ab
  yeastlike, localized infection from, [Jones] 300—ab
FURNACES, radiant energy from, effect on skin temperatures, [Bloomfield] 161—ab
FURUNCULOSIS, treatment, sulphur, [Herxheimer] 1629—ab
  treatment, phenol parenterally, [Matusis] 296—ab
  treatment, roentgen ray, [Leddy] 894—ab
  treatment, staphylococcus toxin, [Weise] ★324; [Greenbaum & Harkins] 815—C; [Weise] 1607—C

G

GALACTAGOGUE: See Lactation
GALACTOSE test of hepatic efficiency, [Elmer] 827—ab
  tolerance in dementia praecox, [Sleeper] 1292—ab
GALEN'S birth commemorated, 1434
  writings, word sparing assertions, 1724—ab
GALLBLADDER: See also Bile; Bile Ducts; Biliary Tract
  bile stasis in, treatment, [Erdheim] 460—ab
  calculi, [Clute] ★1568; [Deaver] ★1641
  calculi, biliary peritonitis complicating, [Masciottra] 1542—ab
  calculi, cause pylorus stenosis, [Makkas] 636—ab
  calculi coexistent with renal and ureteral stones, [Young] 156—ab
  calculi, colloidal silver intravenously in, 1447
  calculi, diagnosis, [Chiray] 828—ab
  calculi, etiology, [Walsh] 1047—ab
  calculi, in Vater's ampulla, [Judd & Marshall] ★1061
  calculi, malaria-like painless form, [Ehrmann] 1875—ab
  calculi, passed through abdominal wall, [Davis] 1458—ab
  calculi, passed through sinus in back, [McCay] 897—ab
  calculi, peritonitis by propagation in, [Desjacques] 973—ab
  calculi, roentgen study, [Moore] ★1957
GALLBLADDER—Continued
  calculi, unique surgical record, [Clements] 1781—ab
  calculi vs. uterine myoma and ovarian disorders, [Plaschkes] 636—ab
  cancer, sequels of biliary tract infection, [Deaver] ★1641
  clinical picture of change in, in bodily diseases, [Wholey] ★1073
  colic, in jaundice, [Blankenhorn] ★1066
  disease, diet in, [Einhorn] 1295—ab
  disease, early stages, [Irland] 156—ab
  disease manifested by reflex reactions [López] 306—ab
  disease with nephroptosis, [Deming] ★251
  diseases, lambliasis with, [Georgievskaia] 562—ab
  drainage, nonsurgical, in acute catarrhal jaundice, 683
  drainage of choledochus through, in chronic pancreatitis, [Santy] 1624—ab
  emptying, cholecystitis effect on, [Murphy] 824—ab
  emptying, induced by food stimulants, [Bronner] 459—ab
  empyema, ruptured, associated with Ascaris lumbricoides, [Power] 452—ab
  empyema with subphrenic abscess, [Polayes & Lederer] ★407
  excision and, anaerobic infections, [Gordon-Taylor] 968—ab
  excision, biliary fistulas after, [Lahey] 1777—ab
  excision, end-results, [Sanders] 1292—ab
  infection, [Deaver] ★1641
  inflammation, acute, treatment, [Hamant] 630—ab
  inflammation, acute, vs. emptying of gallbladder, [Murphy] 824—ab
  inflammation, blood sugar curves in, [Eitel] 1544—ab
  inflammation, chronic, [Jones] 1532—ab
  inflammation, chronic, relation to hepatitis, [Koster] 300—ab
  inflammation, colloidal silver intravenously in, 1447
  inflammation: effect on gastro-intestinal tract motility, [Badylkes] 239—ab
  inflammation, etiology, [Williams] 1132—ab
  inflammation, in acute pancreatitis, [Eliason] 1051—ab
  inflammation, unusual infection route in, [Rutherford] 1132—ab
  lesions, relation to hepatitis, [Flint] 373—ab
  perforation in typhoid, [Berger] 1055—ab
  reflex, [Kusnezow] 239—ab
  roentgen study, [Feldman] 1942—ab; [Moore] ★1957
  roentgen study, accident in swallowing tetiothalein sodium capsules, [Heuser] 1658—ab
  roentgen study, using tetiothalein sodium in jaundice, [Rudisill] ★1425
  Surgery: See also Gallbladder excision
  surgery, immediate causes of death after, [Stanton] 295—ab
  torsion, acute, [Costantini] 376—ab
GALLSTONES: See Gallbladder calculi
GALVANO necklace fraud, 882—BI
GANGLION (nerve): See Gasserian Ganglion
GANGLION (tumor), sodium morrhuate injections for, [McEvedy] 1781—ab
GANGLIONECTOMY, sympathetic, [Dobrzaniecki]—1871—ab
  sympathetic, effect in Raynaud's disease, etc., [Lewis] 374—ab
  sympathetic, in arthritis, [Coughlin] 152—ab; [Hench] 1378—ab
GANGRENE: See also Intestines; Lungs
  arteriosclerotic, irradiated substances in, [Ried] 1218—ab
  Bacillus gangrenae-cutis, [Nativelle] 1299—ab
  blood circulation of feet in diabetes in, [Starr] 891—ab
  extensive, urethra and penis reconstructed after, [Mallard] ★332
  gas, complicating traumatic amputation of thigh, [Pennoyer] ★342
  gas, in civil surgery, [Eckhoff] 968—ab
  gas, pathogenesis, treatment, [Baggio] 975—ab
  Gas-Gangrene Antitoxin (Combined) Refined and Concentrated P. D. & Co., 729
  in scarlet fever, [Sutherland] 452—ab
  in sigmoid tumor, [Crane] ★262
  juvenile, freezing of sciatic nerve for, [Läwen] 1462—ab
  metastatic gas phlegmon with Bacillus perfringens, [Botreau-Roussel] 972—ab
  of extremities, arteriography in, [Charbonnel] 235—ab
  of lower extremities, surgery of diabetes for, [Maes] 1943—ab
  of lower extremity, gas bacillus infection complicating, [Linton] ★183
  pyoderma (echthyma) gangrenosum, [Brunting] 1533—ab
  spontaneous, alcoholization for, [Mamedov] 461—ab
  varicose veins slough, [Kilbourne] ★787
GARBAGE, Beccari method of disposal, 948
  purification, French Congress of Hygiene describe, 1601
GARDEN, ultraviolet ray, of fruits and vegetables, 211
GARGLE, alphanaphthol, 34
GARLIC, wood, Stroopal cancer cure, 1037—BI
GAS, action on human uterus, [Bourne] 827—ab
  A. M. A. Committee on Poisonous Gas, 44; 1676
  Bacillus: See Bacillus, welchii
  behavior in lung, [Anthony] 1627—ab
  carbon monoxide poisoning without gas being extinguished, [Naville] 898—ab
  Embolism: See Embolism, air
  flame, radiations from, [Coblentz] ★412
  Gangrene: See Gangrene
  hazard: methanol, 664—E
  heater, radiant, "Ray Glo," [Coblentz] ★412
  hydrocyanic acid, execution in state prison of Robert H. White by, [Hamer] ★661
  Mustard: See *di*Chlorethyl-Sulphide
  Poisoning: See also Carbon Monoxide; Cyanide; Hydrogen Sulphide
  poisoning and blood transfusion, [Sennels] 312—ab
  tanks, possible industrial disorder in worker in, 146
  under diaphragm, roentgen significance, [Jenkinson] 1775—ab
  warfare, action, 425
  warfare, sequels of, [Reiche] 379—ab
GASIDAL, 1194—BI
GASOLINE: See also Tetra-Ethyl Lead
  poisoning in children, [Aikman] ★1662
GASSERIAN GANGLION, examination in trigeminal neuralgia, [van Nouhuijs] 381—ab
  anatomy, [van Nouhuys] 1952—ab
  tumors and inflammations, [Stammers] 969—ab
GASTRECTOMY: See Stomach surgery
GASTRIC JUICE: See Stomach secretion
GASTRO-ENTERITIS, milk-borne epidemics in rural areas, 1598
GASTRO-ENTEROSTOMY in peptic ulcer, 66; [Hortolomei] 1212—ab; [Balfour] 1776—ab
GASTRO-INTESTINAL TRACT: See also Digestive Tract; Intestines; Stomach
  absorption of lead from, [Miyasaki] 238—ab
  constitution relation to, [Friedenwald] ★905
  content, reaction, [Mann & Bollman] ★1722
  lymphogranulomatosis, [Sussig] 1544—ab
  motility vs. cholecystitis, [Badylkes] 239—ab
  neuroses, [Friedenwald] ★908
  parasitism by Tyroglyphus farinae, [Quérangal des Essarts] 1381—ab
GASTROPHOTOGRAPHY, [Aschner] 369—ab
GASTROPYLORECTOMY for gastroduodenal ulcers, [Hortolomei] 1212—ab
GENERAL EDUCATION BOARD, gift to Central Institute for Deaf, 54
  gift to University of Chicago, 207
GENERAL ELECTRIC Co. sodium-in-quartz photo-electric cell and Sun Lamp, radiation from, [Coblentz] ★411
  X-Ray Corporation gifts to University of Chicago, for research in diathermy, 418
GENERAL MEDICAL COUNCIL and India, 137
GENES, biologic basis of human nature, 1237—ab
  characteristics depend on, 1021—ab
GENETICS: See also Eugenics
  system of, 595—ab
GENITALS: See also Penis; Vagina; etc.
  atresia, traumatic injury of urethra during coitus, [Schepetinsky] 2000—ab
  development, effect of anterior lobe of hypophysis on, in male, 1191
  diseases in female, roentgen irritation-therapy, [Seitz] 1705—ab
  dysfunctioning, chemical sympathectomy etc. in, [Revoltella] 304—ab
  dystrophic geroderma, [Bardisian] 899—ab
  hypogenitalism, vs. pituitary hormone, [Schapiro] 1704—ab
  hypoplasia in female, [Meaker] ★468
  pruritus, radioactive mud for, [Iribarne] 1950—ab
  sterilization at parturition, [Henderson] 230—ab; 667—E; [Mayes] 1208—ab; [Ford] 1946—ab
  teratoma in tubular hermaphrodite, (McCrea] 968—ab
  tuberculosis in male, [Lehmann] 636—ab
  tuberculosis with epididymal and renal tuberculosis, [Mombaerts] 972—ab
GENIUS, more intensive development of cortical areas in gifted musicians, 879
GENTIAN VIOLET, action on Monilia tropicalis, [Lim] 629—ab
  alcoholic acetone solution of, use in varicose veins sloughs, [Kilbourne] ★787
  solutions for irrigating empyema cavity, 886
GENU recurvatum: See Knee
GEORGE, JOHN J., cancer clinic closed, 601
GEORGE ROBERT WHITE FUND, sixth health unit established through, dedicated, 1105
GEORGETOWN University School of Medicine, full-time teachers at, 1510
GEORGIA, Medical Association of, proceedings abstracted, 75
GERM Cells: See Spermatozoa
GERMAN: See also Deutsche
  government's attitude toward Lübeck disaster, 352, 356; 357; 676; 1031; 1761; 1927
  Measles: See Rubella
  people, cancer as disease common to, 1278
  Pharmacologic Society, meeting, 1114
  physicians, convention in Kolberg, 111
  quacks, number, 518
  Roentgen Society, session, 141
  scientists and physicians, 1277; 1442

GERMAN—Continued
  Society for Combating Quackery, poster, 1444—BI
  Society for Light Research, 1029
  Society of Diseases of Digestion and Metabolism, 1601; 1603
  Surgical Society, 54th session, 61
GERMICIDES: See also Antiseptics; Disinfectants; Sterilization, Surgical
  brilliant green as, 215
  compared with metaphen, [Birkhaug] ★917
  function of stomach, [Klinge] 976—ab
  property of tin compounds, [Valentini] 1057—ab
  Pyridium, 34
  Radam's Microbe Killer, Sanovapor, 1365—BI
GERODERMA, genitodystrophic, [Bardisian] 899—ab
GEROTA'S FLUID, to demonstrate lymphatic system in cadavers, 747
GERSON'S DIET: See Diet, Larynx tuberculosis; Skin tuberculosis; Tuberculosis, treatment; Tuberculosis, Pulmonary, treatment
GESELLSCHAFT: See also Deutsche
  deutscher Naturforscher und Aerzte, 1277; 1422
  deutscher Nervenärzte, 1603
GEYSER, ALBERT C., more Tricho cases, [Lane] 286—C
GIANT CELL: Cells; Tumor
GIARDIA: See Lamblia; Lambliasis
GIEMSA staining of blood smear, [Brinnitzer] 977—ab
GIFTS. See Bequests
GINGER, Jamaica, paralysis, [Jeter] ★112; [Merritt] 692—ab; 1029; 1672—E; [Smith] 1700—ab
GIRLS, adolescent, menstrual disorders in, [Lawrence] ★1148
GLANDS: See also Endocrines; Lymphatic System; Suprarenals; etc.
  filtrate, autogenous, in Hodgkin's disease, [Hanrahan] 623—ab
GLANDULAR FEVER, [Bland] 1298—ab
  epidemic in children's home, [Scheer] 1787—ab
GLANTONE, 814—BI
GLARE, protecting eyes from, [Coblentz] ★593
GLASS particles in horseradish, perforation of esophagus from, [Meyersburg] ★1341
  Maltese X-Ray Lead Glass, 865
  Sunlit Ultraviolet Glass, 484
  ultraviolet transmitting, specification of minimum transmission, [Coblentz] ★864
GLASSES to protect eyes from glare, [Coblentz] ★593
  binocular loupe, [Lahey] ★1975
  frame, modified, used for making new mask, [Mellinger] ★662
  tinted, status, [Fink] 1207—ab
GLAUCOMA, stramonium contraindicated, 951
  unusual complication in regular enucleation, [Gjessing] 1306—ab
GLAZIERS, cataract peculiar to, 353
GLEY, EMILE, death, 1682
GLIOMA, gastric, [Harild] 1464—ab
GLOBULIN in urine in albuminuria, [Fischer] 830—ab
GLOMERULONEPHRITIS: See Nephritis
GLOTTIS, edema, laryngeal obstruction from, [Kemler] 771—ab
  edema, subglottic, 615
  edema, unusual cause, [Vass] 831—ab
GLUCOSE: See also Dextrose
  corn syrup for infants, [Wright] 1616—ab
  vitamins in Karo, 1933
GLUCOSIN, fluctuation in sugar tolerance, 1284
GLUE, sensitivity to, [Ramirez & Eller] ★1082
GLYCEMIA: See Blood sugar
GLYCEMIN, Accademia Lancisiana discuss, 947
GLYCERIN magnesium sulphate packs for erysipelas, [Ude & Platou] ★1
  research, Glycerin Producer's Association gift for, to University of Chicago, 418
GLYCERYL TRINITRATE, in angina pectoris, [Schmidt] 1386—ab
GLYCOGEN, protective devices for heart, 867—E
  deposition in liver vs. raw egg yolk, [Abelin] 1785—ab
GLYCOSURIA: See also Diabetes Mellitus
  nondiabetic, [Rowe] 368—ab
  obesity and, 1282
  Renal: See Diabetes, Renal
GLYCURONIC Acid: See Acid
GOATS, contagious abortion is observed only in bovines—not in goats, 673
  exposure to sunlight and ultraviolet ray effect on milk, [Steenbock] 160—ab
  malta fever traced to, [Loewy] 967—ab
  Milk: See Milk
  Serum: See Serum
GOETHE Prize: See Prizes
GOITER: See also Hyperthyroidism; Hypothyroidism; Thyroid
  basal metabolism estimation in, [Ireland] 646—ab
  endemic, Medical Research Council review of iodine in rocks, 276
  experimental production, [Stahnke] 699—ab
  in infants, treatment, [Rupilius] 1873—ab
  in pregnancy, [Hinton] 1203—ab; [Reycraft] 1208—ab
  nostrum, Galvano necklace, 882—BI
GOITER—Continued
  nostrum, Pavia, 1116—BI
  prevention, iodine, [Stone] ★713; 1188
  problem, foods in solution of, [Weston] 161—ab
  simple, etiology, [Webster] 157—ab
  treatment, ergotamine tartrate, [Aldersberg] 1875—ab
  treatment, roentgen, [Cohen] 1861—ab
  treatment, thyroidectomy after radiotherapy, 741
GOITER, EXOPHTHALMIC, [Braid] 694—ab
  alopecia areata in, [Sabouraud] 631—ab
  carbohydrate metabolism disorders in, [Kugelmann] 1386—ab
  complications, myxedema during iodine administration, [Thompson] 368—ab
  exophthalmos (marked) in, [Pauchet] 1133—ab
  Graves syndrome, 1976—E
  iodine metabolism in, [Bier] 378—ab
  pathogenesis, Hunt's reaction, [Vogt-Møller] 1546—ab
  thyroid heart in, [Thomas] 624—ab
  toxic, [Bartlett] 154—ab
  toxic adenomatous, operative mortality in, [Clute] ★389
  treatment, [Groover] 362—C; [Pinto] 561—ab
  treatment, animal blood injections, [His] 166—ab; [Zimmer] 166—ab; 1463—ab
  treatment, iodine, changes after, [Lund] 462—ab
  treatment, postoperative results, [Clarke] 1127—ab
  treatment radium, in, [Loucks] 1290—ab
  treatment, roentgen, in middle-aged women, [Jugenburg] 309—ab
  treatment, surgical, [Troell] 701—ab; [Short] 1536—ab
  treatment, surgical, iodine before and after, [Bier] 378—ab; [Fulton] 965—ab; [Rahm] 380—ab
  treatment, surgical, technic for subtotal thyroidectomy, [Pool] 301—ab
GOLD, case of "golden hair," [Knutsson] 462—ab
  mine mill workers, cyanide rash in, [Braddock] 1377—ab
  salts plus arsenic in skin tuberculosis, [Noguer-Moré] 457—ab
  Sodium Gold Thiosulphate, 1913
  Sodium Thiosulphate-Abbott, 1913
  sodium thiosulphate, dosage in erythema induratum, 885
  sodium thiosulphate in clearing up brown spots on the skin, 1197
  sodium thiosulphate in lichen nitidus, [Niles] 1533—ab
  sodium thiosulphate in vitiligo, 955
  sol, blood serum test of dementia paralytica, [Newman] 234—ab
GOLD CROSS MILK, mineral values, [Weston] ★835
GOLDGLAN, 814—BI
GONIN'S operation for detached retina, [Knapp] 1919—ab
GONOCOCCUS antigen, in urine, test for, [Ovtchinnikov] 1299—ab
  highest dilution of disinfectant killing, [Birkhaug] ★917
GONORRHEA: See also Medicolegal Abstracts at end of letter M
  adnexitis, diagnostic value of vaccination in, [Bacialli] 697—ab
  arthritic complications in male, [McCahey] 368—ab
  complement fixation in, [Petersen] 461—ab
  endocarditis with recovery, [Perry] 77—ab
  in women during postwar period, [Beck] 377—ab
  incidence in America and Europe, 682
  keratoses, without gonorrhea, [Genner] 462—ab
  nostrum, Solomon Whitfield Smith's Venereal Medicine, 1606—BI
  physical examinations required before marriage, Turkey, 1360
  spurs a misnomer, [von Lackum & Palomeque] ★472
  treatment, diathermy, in male, [Kowarschik] 311—ab
  treatment of shreds and pus in urine after, 289
  treatment, Pyridium, 34
GOOD HOUSEKEEPING: See Journals
GOOD SAMARITAN OINTMENT, 430—BI
GOODWIN'S Cold Breakers, 1038—BI
GORDON SIGN in meningitis, 953
GORY, Dr., antityphoid serum perfected by, 1113
GOUT, foods restricted and allowed, [Stone] ★712
  tophaceous, [Lewy] 1058—ab
GOVERNMENT: See also British; German; United States
  philanthropy and state medicine, [Irons] ★246; 1844
GRAAFIAN FOLLICLE are sources of the hormones, 1445
GRADIENT of capillary permeability, 938—E
GRADUATE Courses: See Education, Medical
  Fortnight, at New York Academy of Medicine, 349; 1106; 1272
GRADUATES, MEDICAL, ★504; ★505; ★506; 535—E
  baccalaureate degrees and, ★505; 535—E
GRAFT: See Bone; Fascia; Skin; Testicles; Transplantation
GRANGER position, normal sinuses in, [Granger] ★1332
GRANITE industry and pulmonary disease, [Russell] ★1714
GRANTS: See under Donations
GRANULATIONS, physical signs in, [Jackson] ★612
GRANULOCYTES: See also Angina, agranulocytes
  toxic injury of granulocytic apparatus from arsphenamine, [Meyer] 701—ab
GRANULOCYTOPENIA, 1428—E
GRANULOMA: See also Lymphogranulomatosis
  coccidioidal, 667—E
  infective, and streptococcal infection, [Poynton] 1622—ab
  inguinale, complicating pregnancy and labor, [Wilson] ★1093
  physical signs in, [Jackson] ★642
  scalpel surgery for, [MacKee & Stone] ★1317
GRAPEFRUIT, Whitefield Genuine Grapefruit Juice, vitamins in, 1933
GRAPE-NUTS, 595
GRASS pollen, hay-fever due to, [Huber] 293—ab
GRASSET, antityphoid serum perfected by Dr. Gory and, 1113
GRAVES' DISEASE: See Goiter, Exophthalmic
GRAVITY: See also Specific Gravity
  circulation and, 1837—E
GREEN, R. G., on hosts of tularemia, 667—E
GREENVILLE (Skimmed) Milk, mineral values, [Weston] ★835
GREGG, ALAN, 1679
GRENFELL Hospital in Labrador burns, 1514
GREY TURNER'S SIGN: See Turner's Sign
GRIFFITH, CHARLES MARION, 944
GRIPPE: See also Influenza
  nostrum, A. D. S. Cold and Grippe Tablets, 1444—BI
  nostrum, Devel's Grippe, 1281—BI
  nostrum, Foley's Cold and Grippe Tablets, 1606—BI
  nostrum, Kidder's Cold and Grippe Tablets, 1195—BI
  nostrum, Klein's Cold and Grippe Capsules, 1195—BI
  nostrum, Watkin's Grippe Tablets, poisoning in children, [Aikman] ★1662
GRIP-SULES, 952—BI
GROSSICH'S Method of iodine disinfection of skin, [Curri] 1138—ab
GROVE-COCA TEST: See Coca-Grove Test
GROWTH: See also Bone; Cancer; Tumor
  effects of continued iodide administration, 1916—E
  growing pains before and after tonsillectomy, [Kaiser] ★838
  in length, rate of, after using viosterol, [Hess & others] ★322
  mental, of feebleminded children, [Gordon] 453—ab
  of fibroblasts in healing wounds, vs. high protein diet, [Harvey] 158—ab
  promoting factor, vitamin A in disease, 798—E
  rate with increased blood supply, [Harris] 373—ab
  size-factor in development, 945
  sodium aluminum sulphate baking powder effect on, [Lyman] 753—ab
GRYPOTONOGRAPHY: for measuring blood pressure, [von Recklinghausen] 170—ab
GUAIAC test (bicolored) for spinal fluid, [Greenfield] 1132—ab
GUAIACOL carbonate in intestinal tuberculosis, [Burnand] 971—ab
  treatment of typhoid, [Guerrero] 1942—ab
GUANIDINE in Blood: See Blood
GUBERNACULAR tails, Lockwood's, ectopia testis perinei, [Robertson] ★191
GUILFOY, WILLIAM H., 541
GUINEA-PIGS, diet for, 1609
  nurslings, effect of milk diet, [Bilek] 1628—ab
  psittacosis in, [Rivers & others] ★577; ★579
GUM, Slends Chewing Gum, Dr. Rusby's testimony, ★723; 730—E
GUMMA, syphilitic, solitary, of ovary, severe pain symptoms in, [Cobau] 165—ab
  multiple, of heart in new-born, [Williams] 1774—ab
GUNSHOT Wounds: See Wounds
GURVITJ'S mitogenetic rays, [Nielsen] 312—ab
GYMNASTICS: See Athletics; Exercise
GYNECOLOGISTS, American Association of, 805
  report of Dr. Ill on ergot for Association of, ★726; 730—E
GYNECOLOGY, American Board of Examiners of Obstetrics and Gynecology, 122; 1355
  Anesthesia in: See Anesthesia, local
  backache, pathogenesis, [Übermuth] 1463—ab
  blood sedimentation test in, [Nystrom] 621—ab; [Dodds] 758—ab; [Jackson] 1869—ab

GYNECOLOGY—Continued
  care of puerperium, [Hanna] 153—ab
  Congress of, Belgium, 1602
  embolism in surgery in, [Polak] 1774—ab
  patients, anterior pituitary hormone in blood of, [Fluhmann] 753—ab
  roentgen irritation therapy in, [Seitz] 1705—ab
  specimens, Locker collection, 1436; 1516
  therapeutic value of diathermy, [von Büben] 311—ab; 1625—ab
GYNERGEN "Sandoz," [Fletcher] 746—C; [Sandoz Chemical Works] 1195—C

H

HABIT reactions, fixation, 362
  training, poor start in, cause of bad and nervous children, [Richards] ★1013
HADEN, RUSSELL L., 540
HÄSER'S coefficient in urinalysis, 221
HAFFKINE, WALDEMAR, death, 1599
HAGGARD, WILLIAM DAVID, A. M. A. medal presented to, 118
HAIR: See also Alopecia; Scalp; Seborrhea
  Ball: See Phytobezoar
  dyes, [MacKenna] 80—ab
  effects of carbon tetrachloride on, 65
  fungi in, reagent for demonstrating, [Cornbleet] ★1743
  "golden," case, [Knutsson] 462—ab
  growth and distribution vs. endocrines, [Cooper] 296—ab
  growth inhibition, in angina pectoris or thrombosis, [Neuda] 1785—ab
  hypertrichosis: roentgen epilation, [Hoede] 763—ab
  hypotrichosis from endocrine disorders, [Behdjet] 1054—ab
  piedra, [Aars] 1205—ab
  removal, epilation by thallium acetate in tinea in children, [Mateos] 698—ab
  removal, Tricho cases, [Lane] 286—C
  sensitiveness to, [Ramirez & Eller] ★1081
  Vreelands grow-hair-quick concern declared fraud, 219—BI; 613—BI
HAIRERBS, 219—BI; 613—BI
HALANUM, 951—BI
HALL, G. STANLEY, measuring intelligence, 1335—ab
HAMMOND'S MIXTURE, 1119
HAND: See also Fingers; Nails; Phalanges; Wrist
  acanthosis nigricans confined to palms, 145
  artificial, 288
  cysts of long bones, [Platt] 968—ab
  deformity with supranumerary toes, [Cooperman] 1779—ab
  dermatitis from soap and cleansing without irritation in a linotype operator, 1525
  eczema (chronic), treatment, 955
  epidermophytosis and epidermophytids, [Highman] ★1158
  handedness vs. eyedness, [Quinan] 623—ab
  infection, aspergillus, [Myers & Dunn] ★794
  infections from human bite, [Mason] 1943—ab
  mycotic keratosis of palms, 1111
  phlegmon, colloidal silver intra-arterially for, [Scollo] 305—ab
  right, atrophy of distal phalanges of, in Raynaud's disease, [Kolodny] ★1020
  sterilization, alcohol for, 433
  suppurations, treatment, [Sokolov] 1542—ab
  sweating of palms, 347
HANDICAPPED: See Crippled
HANDWRITING: See Writing
HANNA, ROGER J., 941
HANNA LECTURE, 1513
HARMAN Prize: See Prizes
HARNACK, E. H., x-ray martyr, 1110
HARRINGTON, M. M., eat and grow fat, 1507—E
HARRIS, H. A., receives Alvarenga Prize, 736
HARRIS, MALCOLM LA SALLE, A. M. A. medal presented to, 119
HART Nasal Jelly, 952—BI
HARTMANN, H., retires, 1111
HARVARD fellowships for medical students, 1510
  University, 1432; 1678; 1841
HARVEY, WILLIAM, engraving of, given to Medical College of Virginia, 1355
HARVEY ORATION, Dr. Robert Hutchison to deliver, 944
HARVEY SOCIETY LECTURE, first, by Robert F. Frank, 1106
  second, by Karl S. Lashley, 1512
  third, by G. Elliot Smith, 1679
HASTINGS Prize: See Prizes
HAYDEN, AUSTIN A., nominated A. M. A. Treasurer, 206
HAY-FEVER, acid-base balance and, [Beckman] ★1582
  elm pollen as complicating factor in, [Durham & Black] 293—ab
  etiology, [Joltrain] 696—ab
  etiology, trichophytin, [Wise & Sulzberger] ★1504
  nostrum, Dr. Cline's prescription No. 5 for, 1688—BI
  nostrum, EfeDron Hart Nasal Jelly, 952—BI
  nostrum, Nozeline, 1280—BI
  nostrum, Sniff, 431—BI
  patients, analysis of information from, [Huber] 293—ab
  pollen, and food allergy, [Rowe] 1456—ab
HAY-FEVER—Continued
  pregnancy concomitant with, [Williamson] 1203—ab
  treatment, acid vs. desensitization, [Beckman] ★1582
  treatment by suggestion, [De Rachewsky] 1213—ab
  treatment, nitrohydrochloric acid, 1447; [Beckman] ★1585
  treatment, pollen inhalations, [Joltrain] 696—ab
  tree pollenosis, [Bernton] 301—ab
  vasomotor rhinitis, [Fort] 75—ab
HEAD: See also Brain; Cranium; Face; Hair; Scalp; etc.
  emphysema complicating tonsillectomy, [von Hofe] ★934
  fetal cephalometry in utero, [Thoms] ★21
  fixation and support in cervical vertebrae fractures, [Le Fevre & Jackson] ★1669
  osteitis fibrosa polycystica and diabetes insipidus, [Sophian] ★483
  size of, after using viosterol, [Hess & others] ★322
  tetanus, recovery after, 609
HEADACHE: See also Migraine
  before and after tonsillectomy, [Kaiser] ★838
  food sensitivity, 551
  hypothyroidism, [Warfield] ★1076
  in athletes, [Jokl] 700—ab
  in children, differential diagnosis, 1763
  menstrual, [Martin] 1290—ab
  nostrum, Phenyo-Caffein, 952—BI
  nostrum, Sniff, 431—BI
  ocular neurosis, [Derby] ★913
  periodic paralysis of abducens nerve, [Stern] 701—ab
  relation to epilepsy, 1277
  relations of periodic acetonemic vomiting to [illegible] 97—ab; 1763
  [illegible] from, [Harrop [illegible]
HEAD'S ZONES as aids in diagnosis, [Peterson] 1546—ab
HEALING: See also Bone; Fractures; Wounds; etc.
  ointment, 1606—BI
HEALTH: See also Disease; Hygiene; Medical Service; Sanitation; Sickness
  administration, Turkey, 426
  agencies, plan to unify 85, St. Louis, 1512
  American Child Health Association to make study of conditions in Porto Rico, 619
  A. M. A. Public Health Conference, 206; 1103
  A. M. A. Reference Committee on Hygiene and Public Health report, 41; 49
  American Public Health Association, 873
  American Public Health Association standards, bile fermentation test for B. coli in milk, 362
  associations, relation to medical profession, [Blumer] 232—ab
  board for State University of Iowa, 1270
  board, general, Turkey, 426
  board, White Plains abolishes, 420
  center, adult, at University of California, 539
  center and notification of birth, Australia, 1984
  center, new, at Alhambra, California, 802
  center opened, first, New York City, 1512
  center, sixth unit dedicated, Boston, 1105
  center, Woodbury County Health Unit, Iowa, 1432
  centers, four units to be established, Alabama, 1510
  centers in Madagascar for natives, 739
  centers opened for children up to 6, Pennsylvania, 1679
  children's, in Australia, 1984
  children's, to whom does it belong? [Richards] ★1011
  columnist, Dr. William Brady, 346—E
  commissioner of New York testimonial for tooth paste, 1267—E; 1268—E
  commissioners have new duty, Ohio, 1107
  commissioners, state, of Michigan, Ohio and Indiana, conference for uniform quarantine regulations, 734
  conditions in India, 603
  conditions in Porto Rico, report, 619
  contest by American Public Health Association and U. S. Chamber of Commerce, 1187; 1597
  council established, Turkey, 426
  council, Italy, 546
  county, service in Maryland, 1027
  demonstration, Bellevue-Yorkville campaign against venereal disease, 1106
  demonstration, Children's Fund report, 1356
  demonstration, Milbank Fund to withdraw from Syracuse and Cataraugus County, 351
  demonstration, social hygiene campaign, 1596
  Department: See Medicolegal Abstracts at end of letter M
  drought menaces, Kentucky, 601
  fads and fancies and the newspapers, [Stone] ★713
  habits for children, [McCord] 75—ab
  healthcade, East Texas, 1680
  Industrial: See Industrial
  Insurance: See Insurance
  International Health Board, study of former yellow fever patients by, 1714
  League of Nation's program for China, 736
  mineral content of drinking water effect on, 363
  misspent wealth for, 599—E
HEALTH—Continued
  National Health League scheme, Paul O. Sampson, 144—BI
  National Institute of Health, 1180—E; 1356
  National Institute of Health, Chemical Foundation gift to, 136
  National Institute of Health work on etiology of ginger paralysis, 1672—E
  of Maori school children, 58
  of worker of today, [Oliver] 1132—ab
  office, Panama, merger of, 422
  officer, Dr. Byrd appointed, of Panama City, 603
  officer, Dr. Herman G. Morgan 19 years as, 600
  officer, changes, Arkansas, 1104
  officer, state, Dr. W. P. Jacocks appointed, North Carolina, 1186
  officers, compulsory insurance for, Italy, 1438
  officers, conference, Ohio, 1512
  officers, county, special training for, Tennessee, 1752
  officers, Florida needs, 418
  officers, positions open for, New York, 349
  problems, police chiefs in Tokyo discuss, 1360
  public, activities, cooperation between federal and state governments in, A. M. A. policy on, 1676
  public, and missionaries, 740
  public, and tuberculosis, [MacGregor] 1945—ab
  public, certain problems in brucelliasis, 799—E
  public, England, 1681
  public, French government aid to promote work, 58
  Public Health Institute of Chicago, 1266—E
  public health institute, new, Rome, 1926
  Public Health Institute, state, Oslo, 1029
  public health party, third meeting, France, 278
  public, law of 1902 revised, France, 1600
  public, law, Turkey, 426; 677
  public, movement and physicians, [Ross] 693—ab
  public, neglected opportunities for epidemiologic study, [Bishop] ★563
  public, registrar of records, W. H. Guilfoy, New York City, 541
  public, take on an exaggerated character? 1362
  public, vs. vitamins and hormones, 1761
  record book, 1848
  resorts, 740
  resorts, diet of patients in, 62
  resorts, division into those for non- and tuberculous patients, France, 278
  resorts, study of Saratoga Springs mineral waters, 735
  resorts, tour of American physicians through France, 212; 424
  rural health experiment, China, 1436
  rural health project, Commonwealth Fund selects site for, Massachusetts, 1105
  Rural Health Service, 943
  schools, summer, California, 802
  search for, 1429—E
  service, colonial, 546
  services of life insurance companies, 1035
  services offered by Medical College of Virginia, 1355
  state exhibit, 1027; 1270
  state fair health program, Nebraska, 1027
  students' at University of Michigan, 1841
  surveys of cities, Connecticut, 1591
  synovial fluid in, [Forkner] 1378—ab
  Unit: See Health center
  U. S. Public Health Service: See also Health, National Institute of Health
  U. S. Public Health Service, 604; 737
  U. S. Public Health Service, A. M. A. resolution on federal aid for maternal welfare, 44; 49
  U. S. Public Health Service, conference on new Bureau of Narcotics, 671
  U. S. Public Health Service, entrance examinations, 737; 914
  U. S. Public Health Service, milk sanitation program, 870; 872
  U. S. Public Health Service regulation concerning ethyl gasoline, 209
  U. S. Public Health Service report, 1923
  U. S. Public Health Service report that tri-ortho-cresol phosphate cause of "ginger jake" epidemic, 1029; 1672—E; [Smith] 1700—ab
  U. S. Public Health Service, syphilis control demonstration, 1753
  White House Conference on Child Health, [Baker] 1018—ab; 1514; 1746—E; 1765—ME
HEARING: See also Deaf; Deafness
  devices, use, 748
  new method, [Jellinek] 83—ab
  qualifications for driver's license, 47
  tests for school children, Illinois, 1181
HEART: See also Arteries, coronary; Pericardium; Pulse; etc.
  accidents in toxic adenoma of thyroid, [Froyez] 1299—ab
  action current in typhoid, [Gerbasi] 1283—ab
  action, irregular, [Sonne] 904—ab
  activity, motion pictures of, 217
  American Heart Association, proceedings abstracted, 438; 555
  annulus of Vieussens, 1283
  arrest, [Green] 1291—ab
  Arrhythmia: See Arrhythmia
  arteriosclerosis effect on, [Fahr] 1451—ab

HEART—Continued
- auricle, left, marked dilatation of, [Burkhardt] 690—ab
- auricle, left, polypoid fibroma of, causing ball-valve action, [Houck] 1126—ab
- auricle, right, catheterization, [Diaz] 165—ab
- Auricular Fibrillation: See Auricular Fibrillation
- Auricular Flutter: See Auricular Flutter
- Beat: See also Arrhythmia; Bradycardia; Heart rate; Heart rhythm; Pulse; Tachycardia
- beat, cardiotachometer to study, [Boas] 901—ab
- beat, execution of Robert H. White by hydrocyanic acid gas, [Hamer] ★661
- beat, frequency of, influence the volume of output per minute, 1114
- beat, interpolated ventricular premature, latency theory of, [Ashman] 443—ab
- block, Adams-Stokes' syndrome in rheumatic fever, [Faulkner] 450—ab
- block, bundle-branch, with short P-R interval, [Wolff] 1125—ab
- block, from diphtheria, [Butler] 443—ab
- block, in aconitine poisoning, [Hartung] ★1265
- block, latency theory, [Ashman] 443—ab
- block, partial bundle branch, [Slater] 443—ab
- block, right bundle branch, [Bach] 303—ab
- block, Stokes-Adams, barium chloride in, [Parsonnet] 1289—ab
- block, Stokes-Adams, produced by digitalis, [Hewer] 694—ab
- collapse, from aconitine poisoning, [Hartung] ★1265
- compensation disorders, [Krumeich] 634—ab
- conduction time in rheumatic fever vs. salicylate therapy, [Wyckoff] 443—ab
- Decompensation: See Heart, insufficiency
- defibrinated blood, effect on, [Zipf] 238—ab
- Disease. See also Cardiovascular Disease; Heart valvular disease
- disease, acid-base equilibrium in, [Lipets] 1629—ab
- disease, cardiac output in, [Smith] 79—ab; [Alt] 229—ab; 1025—E
- disease, chronic, prognosis, [Faber] 638—ab
- disease, clinical signs, especially etiology, [Herrick] ★1631
- disease, congenital, electrocardiogram in, [Soriani] 1949—ab
- disease, congenital, murmurs, vs. venous murmurs in hepatic cirrhosis, [Gwyn] 1531—ab
- disease, course in, for practitioners, 1511
- disease, death rate of surgeons, Manchester, England, [Mayo] ★646
- disease from congenital syphilis, [Givan] 556 ab, 1697—ab; [McCulloch] 1698—ab
- disease in patient who contemplates marriage, [Reid] ★1468; (discussion) 1476
- disease in professional men, etiologic types, [Horine] 1129—ab
- disease mortality, Oregon, 669
- disease patient as surgical risk, [Butler & others] ★85
- disease patients, ambulatory, digitalis in, [Gold & DeGraff] ★1237
- disease patients, industrial placement of, 432; 941
- disease, research, by Robinette Foundation of University of Pennsylvania, 1273
- disease, research, laboratories for, at Michael Reese Hospital, 803
- disease, rheumatic and hypertensive, Southey's tubes for edema in, [Bland & White] ★1489
- disease, rheumatic, coronary arteries in, [Perry] 302—ab
- disease, rheumatic, in obstetric patient, [Herrmann & King] ★1472
- disease, rheumatic, salicylates to prevent, [Leech] ★932
- disease, rheumatic, statistics, [Reid] ★1468; (discussion) 1476
- disease, symptom, [Jarotzky] 1214—ab
- disease, symptoms not due to palpitation? [Stoll] 443—ab
- disease, unrecognized hyperthyroidism masked as, [Levine] 754—ab
- disease vs. mortality, 619
- disorders in miners, 1033
- diverticulum, congenital, [Mahrburg] 635—ab
- electrocardiogram and teleroentgenogram in early syphilis, [Maynard] 411—ab
- electrocardiogram, axis deviation in, [Proger] 229—ab
- electrocardiogram in artificial pneumothorax, [Perrin] 970—ab
- electrocardiogram in congenital heart diseases in children, [Soriani] 1949—ab
- electrocardiogram in lesions produced by cod liver oil, [Agduhr] 637—ab
- electrocardiogram (normal) and potassium iodide, [McEachern] 1864—ab
- electrocardiogram, T wave changes in coronary occlusion, [Hurxthal] 1940—ab
- electrocardiogram vs. lungs collapse, [Hansen] 1204—ab
- electrocardiogram with large Q in lead 3, [Pardee] 1375—ab
- electrocardiograph, value to general clinician, [Fountain] 76—ab
- electrocardiographic anomalies in acute infectious diseases, [Clerc] 1702—ab

HEART—Continued
- electrocardiography, bundle-branch with short P-R interval, [Wolff] 1125—ab
- electrocardiography in angina pectoris, [Lian] 375—ab
- electrocardiography in fibrosis of myocardium, [Burton] 303—ab
- electrocardiography in obstetric patient, [Herrmann & King] ★1472
- electrocardiography of irregular heart action, [Sonne] 904—ab
- electrolytes effect on, [Fiddes] 759—ab
- emotion-heart phenomena [Mayo] ★646
- exposed, excitatory process observed in, [Barker] 1125—ab
- Failure: See Heart insufficiency
- fetal, irregularities, phonocardiogram to study, [Hyman] 1453—ab
- fibroses, 1675—E
- gummas (multiple) in new-born, [Williams] 1774—ab
- hormone, "Kallikrein," 676
- hormone preparations, in angina pectoris, [Schmidt] 1386—ab
- hormone, so-called, 1101—E
- impaired, mortality in relation to, 619
- in acquired syphilis, [Kurtz] 1697—ab
- in asthma, [Unger] 291—ab
- in congenital syphilis, [Previtali] 555—ab, 1697—ab; [Kurtz] 1697—ab
- in jaundice, [Ivy] ★1070
- in pregnancy, [Reid] ★1468; ★1470; [Herrmann & King] ★1472; (discussion) 1476
- in tuberculosis, [King] 1204—ab
- infarct, myocardial, ventricular complexes in, [Gilchrist] 303—ab
- infarct vs. anginal pain, [Coombs] 302—ab
- infarcts of cardiac origin, [Mortensen] 1536—ab
- injections into, resuscitation of stopped heart by, [Hyman] 1939—ab
- inflammation, rheumatic, before and after tonsillectomy, [Kaiser] ★838
- irregularities, effect of various drugs on, [Brow & others] ★716
- irregularities in fetus, [Hyman] 1453—ab
- irregularities under chloroform, [Brow & others] ★715
- Insufficiency: See also Heart syncope
- insufficiency and pulsus alternans, [Wolfer] 760—ab
- insufficiency, angina pectoris and cardiac weakness, [Kohn] 1781—ab
- insufficiency, blood alkali reserve in, decompensation, [Kevdin] 562—ab; 632—ab
- insufficiency, collapse from arsphenamine injection, [Wirz] 1301—ab
- insufficiency, decompensation from myocardial fatigue, [Boller] 633—ab
- insufficiency, failure, fatal emetine poisoning, [Leibly] 368—ab
- insufficiency, hydrothorax in, [Satke] 830—ab
- insufficiency, insulin plus dextrose for, [Loeper] 1948—ab; [Kisthinos] 1948—ab
- insufficiency, postoperative deaths due to failure, [Westerborn] 1546—ab
- insufficiency, progressive nature of failure, [Burwell] ★1633
- insufficiency, syphilitic aortic regurgitation with *congestive failure, [Herrmann]* 557—ab
- insufficiency with angular spine deformity, [Coombs] 1868—ab
- interventricular septum, congenital aneurysm, [Cannell] 690—ab
- lectures on cardiology, 275
- lesions, rare congenital, [Ariel] 635—ab
- lesions, visualized esophagus in differentiation of, [Rigler] 443—ab
- murmurs, diastolic, differentiation of syphilitic from functional, etc., [Gager] 555—ab
- murmurs, Potain's syndrome, 550
- murmurs vs. venous murmurs in hepatic cirrhosis, [Gwyn] 1531—ab
- Muscle: See also Myocarditis
- muscle, cardiac pain is result of insufficient nutrition to, 731—E
- muscle, contractility, depressing effects of quinidine sulphate, [Martin] 1216—ab
- muscle, degenerative change, myocardosis, [Wolffe] 361—C
- muscle extract effect on, [Bagdassarjanz] 1304—ab
- muscle fatigue, cardiac decompensation from, [Boller] 633—ab
- muscle, fibrosis with electrocardiographic and postmortem examinations, [Burton] 303—ab
- muscle infarction and fibrosis, ventricular complexes in, [Gilchrist] 303—ab
- muscle insufficiency, reaction of vena cava, [Allen] 1627—ab
- muscle, tuberculosis [Costa] 165—ab
- output at high altitudes, 115—E
- output, hepatic vein reactions in circulatory correlations 868—E
- output in heart disease, [Smith] 79—ab; [Alt] 229—ab; 1025—E
- output vs. spinal anesthesia, [Burch] 824—ab
- pain, 731—E
- palpitation in athletes, [Jokl] 700—ab
- phonocardiogram to study irregularities of fetal heart, [Hyman] 1453—ab
- protective devices for, 867—E
- rhythm, daily and monthly in hypertension, [Brown] 447—ab

HEART—Continued
- rhythm, Hippocratic succussion, [Dumont] 81—ab
- rhythm in typhoid during shock, [Gerbasi] 1383—ab
- rhythm, vagotrophic action of epinephrine injected intravenously, [Petzetakis] 828—ab
- roentgen rays effect on, 1198
- roentgen study after poisoning with illuminating gas, [Israelski] 700—ab
- roentgen study (fluoroscopic) in syphilis, [Kurts & Eyster] 440—ab
- sounds, intercontinental transmission by telephone, 1276
- *syncope due to hyperexcitability of carotid* sinus, [Roskam] 304—ab
- syncope due to pneumothoracic insufflation, [Bonanno] 1136—ab
- syncope, mechanism of death due to, 916
- syphilis, *[Coombs] 969—ab; [Martland] 1697*—ab
- syphilis, anatomic types in sudden death, [Martland] 439—ab
- syphilis, diagnosis, postmortem observations, [Reid] 442—ab
- syphilis, microscopic pathology, [Maher] 1697—ab
- thrombi, uninfected mural, [Harvey] 1289—ab
- thyroid heart, transitory condition, [Thomas] 624—ab
- thyroid, management, [Ruddock] 295—ab
- tricuspid orifice, congenital atresia, [Breslich] 1206—ab
- Tuberculosis: See Heart muscle
- valvular disease in dogs vs. in man, [Powers] 623—ab
- valvular disease patient as surgical risk, [Butler & others] ★85
- ventricles, tachycardia of supraventricular origin, [Wilson] 443—ab
- ventricular cavity, drug absorption from, [Wiggers] 625—ab
- ventricular complexes in myocardial infarction and fibrosis, [Gilchrist] 303—ab
- vessels, isolating from urine a substance which exerts dilating action on, 676

HEAT: See also Baths; Burns; Cold; Temperature
- does cooking tomatoes destroy vitamins in tomatoes? 433; 682
- importance of wet-bulb temperature for recording summer heat, 875
- iritis as an industrial disease in cleaner and presser, 551
- ordinary dry heat domestic oven effective for sterilization of linen? 288; 739
- production, efficiency of human muscles, 799—E
- production vs. muscular exercise, [Wang] 690—ab
- sensitivity to, 1283
- thermal adjustment of man and animals to external conditions, [Martin] 1458—ab
- urticaria, angioneurotic edema, etc. caused only by sense of, [Duke] 293—ab

HEATER, gas, radiant, "Ray Glo," radiations from, [Coblentz] ★412
- Sorensen Therapeutic Heater No. 921, 413

HEELS, gonorrheal spurs a misnomer, [von Lackum & Palomeque] 472

HEIGHT: See Body

HEINZ Rice Flakes prepared with pure rice cellulose, 485

HEKTOEN PHENOMENON, 1990
- in undulant fever, 1351—E

HELIOTHERAPY: See also under Tuberculosis; Tuberculosis, Pulmonary; Ultraviolet Rays
- effects on blood, [Bungenberg de Jong] 977—ab; [Hoeffel] 1373—ab
- in intestinal tuberculosis, [Burnand] 971—ab
- in tuberculous osteoarthritis, [Bufnoir] 1135—ab
- mode of action of, 138
- Schickerling Ultraviolet Sun Bath Lamp, [Coblentz] ★411; 954
- treatment in England, [Gauvain] 1132—ab

HELMINTHS in appendixes, [*Bacigalupo*] 1511—ab

HEMANGIOMA, cavernous, and trauma, [Downing] 1205—ab
- congenital, of lip, 1990
- of kidney, [Mackey] 1868—ab
- of pelvic connective tissue, [Frank] 751—ab
- of small intestine, [Kortzeborn] 242—ab
- of spleen, [Schwarz] 1514—ab
- of uterus, [Horgan] 300—ab

HEMATEMESIS without gastroduodenal ulcers, [Polichetti] 164—ab
- profuse, hemiplegia after, [Abrami] 560—ab

HEMATOLOGY and splenectomy in children, [*Salazar de Souza*] 1211—ab

HEMATOMA, spontaneous, of rectus abdominis muscle, [Malpas] 453—ab

HEMATURIA in hydronephrosis, [Pieraccini] 164—ab
- in bladder cancer, [Kretschmer] ★1728

HEMIANOPIA in brain abscess [Coleman] ★568
- permanent, in migrane and subarachnoid hemorrhage, [Adie] 897—ab

HEMICRANIA, acetonemic vomiting relation to, [Curschmann] 697—ab

HEMIDIAPHRAGM: See Diaphragm

HEMIPLEGIA, [Robinson] 151—ab
- after profuse hematemesis, [Abrami] 560—ab

HEMIPLEGIA—Continued
  cerebral, periarterial sympathectomy for pain in, [Bombi] 1541—ab
  infantile, due to malaria, [de Luca] 1541—ab
  spastic, ramisection for, [Royle] 1780—ab
  transient, 1764
HEMOCHROMATOSIS, 1022—E; [Nye] 1762—C
HEMOGENIA, bandage sign, 1110
HEMOGLOBIN: place of formation, [Villa] 635—ab
  sulphemoglobinemia, [Harrop & Waterfield] *647
HEMOGLOBINOMETER, flicker, [Jenkins] 1297—ab
HEMOGLOBINURIA: See also Blackwater Fever
  in new-born, [Smith] 1131—ab
  in patient operated on for appendicitis, [Zaffagnini] 236—ab
  malarial transfusion in; [Barnett] 967—ab
  paroxysmal, from cold, liver therapy, [Lichtmann] 634—ab
  paroxysmal, in Raynaud's disease, [Bywater] 1458—ab
HEMOPATHY: See Blood diseases
HEMOPHILIA: See also Pseudohemophilia
  hemogenia, bandage sign, 1110
HEMOPTYSIS: See also Tuberculosis, Pulmonary
  acute massive atelectatic collapse of lung in, [Müller] 382—ab
ain; Lungs; Men-
; Nose; etc.; and
end of letter M
tment, 1447
445—ab
  control and prevention, 61
  control by pulverized potassium permanganate and zinc oxide, [Hiden] 628—ab
  control during boxing match, 955
  control, togglesqueeze hemostatic forceps, [Littlejohn] *1975
  effects under ether and spinal anesthesia, [Burch] 1863—ab
  in jaundice, sedimentation rate index of tendency, [Linton] 158—ab
  in scurvy in adults, [Gichner & Sherry] *9
  lipemia in anemia due to, [Johansen] 638—ab
  occult, in intestinal cancer, [Dahl-Iversen] 702—ab
  tourniquet capillary resistance test and familial serotherapy in, [Chalier] 1382—ab
HEMORRHOIDS, nostrum Dionol, 1281—BI
  internal, quinine and urea hydrochloride injection for, [Hayden] 895—ab
  nostrum, "Infra-Red Ray Prosto-Therm," *814—BI*
HEMOSTASIS: See Hemorrhage, control
HEMOTHERAPY: See Blood Transfusion; Serotherapy Serum, convalescent
  adult whole blood in measles prophylaxis, [Barenberg & others] *4
  cures aplastic anemia, [Birk] 83—ab
  in hemorrhagiparous *conditions,* [Chalier] 1382—ab
  injections of animal blood in goiter, [His] 166—ab; [Zimmer] 166—ab, 1463—ab
HENCH Aldrich blood urea outfit, 1366
HENOCH'S Purpura: See Purpura
HEPATITIS: See Liver inflammation
HERB, Chinese Herb Company, 745—BI
HERBALIST convicted, Lester Starr, 941
HEREDITY: See also Cancer; *cataract*
  biologic basis of human nature, 1237—ab
  characteristics depend on genes, 1021—ab
  constitution and hereditary transmission, 610
  education and, 107—ab
  genetic system, 595—ab
  of asthma or hay-fever, [Williamson] 1203—ab
  of blood groups, [Wiener] 681—C
  of emotions and capacity for acquiring knowledge, [Mayo] *646
  of *polydactylism,* [Wiener] 431—C
  of recurrent dislocation of patella, [Moore] 825—ab
  researches on tuberculous twins, 427
  when parents are related, 949; 1477—ab
d'HERELLE'S Bacteriophage: See Bacteriophage
HERMAPHRODITE, tubular, with teratoma of internal genitalia, [McCrea] 968—ab
HE
r] *1588
akin] *1822
  diaphragmatic, into esophageal opening, [Frimann-Dahl] 978—ab
  diaphragmatic, right-sided, [Dodds] 694—ab
  diaphragmatic, roentgen diagnosis, [Moore & Kirklin] *1966
  in Africans, [Connell] 968—ab
  inguinal and femoral, [Moen] 978—ab
  inguinal, plastic repair, [Pettit] *1497; [Beccherle] 1625—ab
  inguinal, radical treatment, [Soresi] 1775—ab
  inguinal sac, hydatid cyst in, [Gioia] 1216—ab
  inguinal: subcutaneous attachment of spermatic cord, [Jensen] 904—ab
  sac, tumor formation in, [Richard] 1139—ab
  treatment, alcohol injections, complications, [Goldhahn] 1303—ab
HERNIOTOMY, [Pettit] *1497
HEROES: See also *Roentgen Rays*
  psittacosis in U. S. Hygienic Laboratory workers, [Peterson & others] *171
HEROIN: See *di*Acetylmorphine
HERPES zoster, atypical, of palate, [Camauër] 975—ab
  zoster complicating prostatectomy, [Dakin] *1822
  zoster in acute *meningo-encephalitis,* [Schiff] 758—ab
  zoster, investigated at Rockefeller Institute, 942
  zoster of fifth lumbar nerve, [Waterhouse] 1997—ab
  zoster, pituitary solution in, [Sidlick] 558—ab
HERRICK, JAMES B., Billings *fellowships* at Rush, 136
HERRMANN, DR., death, 676
HERRMANNSDORFER Diet: See Diet
HERZIG, MAXMILIAN L., reciprocity license denied to, 870
HERZSTEIN LECTURES by Dr. Singer, 539
HESS, ALFRED F., priority as to discovery of antirachitic activation, [Steenbock] 220—C
HEXAMETHYLENAMINE tetraiodide, Siomine, 200
HEXYLRESORCINOL as an ascaricide, 1592—E
  compared with metaphen, [Birkhaug] *918
HEYROVSKY'S Method for cardiospasm and esophagus dilatation, [Haggstrom] 1790—ab
HICCUP, persistent, 884
HIGHMORE, Antrum of: See Maxillary Sinus
HI-GRADE Kold Breaker, 680—BI
HILL, LEONARD, 542
HILUM, tuberculosis in perihilus region, [Faber] 1954—ab
HINCKLE'S Cascara, poisoning in children, [Aikman] *1662
  *stychnine tablet, poisoning, [Aikman] *1663*
HINCKS, CLARENCE M., 1680
HINDLE, EDWARD, yellow fever research, 672
HINDUS: See also India
  age of patients operated on for senile cataract, [Gradle] *774
  conditions in Indian population, 137
  politicians nullify law for preventing precocious maternity, 1188
HIP JOINT, anomalies, familial, bilateral, [Kaiser] 168—ab
  approach to, [Osborne] 968—ab
  coxa vara and internal secretion, [Nyberg] 1140—ab
  coxa vara in adolescence, 1846
  dislocation, congenital, [Soutter] 1051—ab
  dislocation, congenital, manual reposition in, [Gangler] 699—ab
  dislocations in new born, new signs for detecting, 1517
  fistula, [Pflomm] 831—ab
HIPPOCRATIC succession of heart rhythm, [Dumont] 81—ab
HIRSCHHORN TEST, [Herbain] 971—ab
HIRSCHSPRUNG'S *DISEASE:* See *Colon,* megacolon
HISTAMINE, hepatic vein reactions in circulatory correlations, 868—E
  action on pancreas, [Neale] 1864—ab
  modifies Cheyne-Stokes respiration, [Kisch] 1874—ab
  reaction in diabetes, [Starr] 891—ab
  Thorpe's isolation of, so-called heart hormone, 1101—E
HISTIOCYTOSIS, lipoid, 1102—E
HISTOLOGY of nervous system, [Ludlum] 296—ab
HISTOPATHOLOGY, role of clinical pathologist, [Sanford] *1466
HISTORY, Case: See Case Histories
  of Medicine: See Medicine
  of Surgery: See Surgery, history
HITE, WILLIAM B., flees, 872
HOARSENESS, diagnosis of laryngeal disease; [Jackson] *1322
  recurrent, before and after tonsillectomy, [Kaiser] *838
HODGKIN'S DISEASE: See Lymphogranulomatosis
HOEHNE'S SIGN of atypical uterine rupture, [Lazarević] 1877—ab
HOFFMAN-La Roche Company, relinquish patent on synthesizing thyroxine, 276; 484
HOGS, liver, dried sample, mineral content, [Weston] *836
  spleen intramuscularly cures, acute lymphocytic leukemia, [Pearce] 1210—ab
  stomach, desiccated defatted, Ventriculin, 797; 1589
  stomach, desiccated, in pernicious anemia, [Sturgis & Isaacs] 73—ab; [Rosenow] 82—ab; [Isaacs & Sturgis] *585; [Winge] 761—ab; 797; [Meulengracht] 901—ab, [Lambin] 1055—ab; 1589; [Allerton] 1622—ab; [Descastello] 1876—ab; [Leschke] 1876—ab; [Holboll] 1954—ab
  trichina in, in Dutch East Indies, 1847
HOGAN'S Old Reliable Cough Syrup, 952—BI
HOHN'S Method, demonstration of tubercle bacilli by, [Sundt] 1060—ab
HOLDER, new urine collection tube, [White] *662
HOLLIE'S Reducing Crackers, 882—BI
HOLMES, GORDON MORGAN, 1185
HOME: See also Housing; Residence
  health bureau, 814—BI
  vs. general hospital childbirths, [Van Auken] 1296—ab
HOMEOPATHIC, Maryland Homeopathic June examination, 886
HONEY bee, venom, 939—E
  is paroxysmal tachycardia an allergic dis*ease, [Luria] 1385—ab*
HOOPER Foundation: See Foundations
HOOVER, HERBERT C., meningitis in Filipinos on American ships from orient, 537—E
  request study of health and social conditions in Porto Rico, 619
  White House Conference on Child Health called by, [Baker] 1018—ab; 1514; 1746—E; 1765—ME
HORIGUCHI, S., 1034
HORLICK'S Malted Milk, 595
  Malted Milk Lunch Tablets (Plain and Chocolate Flavored), 865
  Malted Milk, mineral values, [Weston] *835
  Sweet Chocolate Flavor Malted Milk, 595
HORMONES: See also Heart; Ovary; Pituitary Body; Spleen; etc.
  antehypophyseal, [Fulconis] 973—ab
  blood circulating, 676
  cancer and, 1350—E
  hormonotherapy with blood of pregnant woman and follicular fluid, [Maurizio] 828—ab
  influence in rickets, [Kay] 1049—ab
  insular, detection, in duodenum, [Laughton] 1377—ab
  pancreatic, new, [Santenoise] 1459—ab
  vitamins and public health, 1761
HORNER'S SYNDROME, [Hall] *706
HOROVITZ mixtures, new names for old products, 1933
HORSE power, efficiency of human muscles, 799—E
  Serum: See Serum
HORSERADISH containing glass, perforation of esophagus, [Meyersburg] *1311
HOSPITALS: See also Clinics; Dispensaries; Health center; Medical Center; Outpatient Department; Sanatorium; and under Medicolegal Abstracts at end of letter M
  accounting system, 1433
  aid; is social aid exaggerated? 1362
  aid, problem, 740
  aided by convalescent homes; United Hospital Fund report, 1433
  American aid for establishments in France, 1925
  American Hospital Association, 873; 1753
  A. M. A. Committee to Study Problems of Mental Hygiene and Hospitals, 1103
  American *Protestant Hospital* Association, 671; 1435
  anesthetics given by interns in, *514; 535—E
  Annual Congress on, Feb. 16-18, 1931, 1918
  appropriations for, New York City, 1272
  approved by A. M. A., 289; 1120
  approved for internships, by A. M. A., *517; 535—E
  approved for residencies in specialties, 289
  army, new, at Fort Meade, Marlyand, 735
  artificial respirator will be installed in ten hospitals in Pennsylvania, 1513
  Association of Medical Instruction of Paris Hospitals, 737
  beds for tuberculous persons, 278
  bequests and donations, 136; 805; 1108
  birth control clinics at, in India, 1358
  block for study of puerperal fever, England, 423
  British Postgraduate Hospital and Medical School, 605
  British, working under serious handicap as result of legal restriction on animal experimentation, 801—E
  Cape Town, 810
  care and female personnel, 609
  care, costs of, [Irons] *211
  Children's Free Hospital affiliates with University of Louisville School of Medicine, 540
  children's hospital and school as a unit of the state tuberculosis sanatorium at Sanatorium, Texas, 1028
  Children's Hospital Association of America, 1356
  Cleveland, total expense of operating 19, which participate in Community Fund, 1354
  department of public welfare created, Ontario, 1435
  diphtheria hospital unnecessary, Philadelphia, 735
  Duke University opens, 511
  Emergency Hospital, Annapolis, 1027
  fees and business depression, Japan, 1360
  floating, opens, 55
  Fukagawa, of Tokyo, 426
  government, new, Argentina, 1847
  Grenfell, in Labrador burns, 1514
  Hammersmith, proposed collegiate hostel, 276
  histories written by interns, *515; *535—E*
  history, De Paul Hospital is outgrowth *of* first hospital (1828) in Missouri, 803
  Hospital for Joint Diseases, openings for interns, 1753
  hospitalization by University of California, 1184
  Institute for Mental Hygiene of the Pennsylvania, 1107; 1272
  Intern: See Interns

INFECTION—Continued
  kidney function injured from, [Donath] 460—ab
  leukopenia in, in children, [Bigler] 1373—ab
  local, cautery for, [von Bramann] 1387—ab
  mixed, Pyridium for, 34
  nostrum, Mosso's Oil of Salt, 1280—BI
  of ear, relation to infection of intestinal tract in infants, [Wishart] ★1084
  prognosis, Schilling blood count in, [Rogatz] 689—ab
  Puerperal: See Puerperal Infection
  pyogenic, acute, spleen changes in, [Hewer] 1536—ab
  resistance to, vs. vitamin A, 798—E; [Lassen] 1297—ab
  secondary, exogenous, with tuberculosis, 675
  shock in, [Atchley] ★386
  synovial fluid in, [Shands] 1129—ab
  vitamins effect on, [Pfannenstiel] 169—ab
  Wound: See Wounds
INFECTIOUS DISEASES: See also Communicable Diseases; Immunity; Immunization; Immunology; Measles; Scarlet Fever; etc.
  acute, action of sodium salicylate on, 425
  acute, allergic disease in, [Beckman] ★1582
  acute, electrocardiographic anomalies in, [Clerc] 1702—ab
  acute, transfusion in, [Landon] 1531—ab
  air-borne, new mask that protects both physician and patient, [Mellinger] ★662
  census taking and, Japan, 1034
  disability in, degree, 1521
  legislation regarding, Turkey, 547; 677
  quarantine regulations, Turkey, 517
  requirements for professional bacteriologist, Germany, 811
  serodiagnostic hazard, 733—E
  "stomach rash" or, 885
  unreported, Illinois, 134
INFIRM, census, Netherlands, 354
INFIRMARY facilities, student, at University of Wisconsin, 1273
INFLAMMATION: See also Breast; Gallbladder; Intestines; etc.
  acute and chronic, nervous system rôle in, [Speransky] 970—ab
  focus in bone, rôle of bandage in determining site of, [Kusmin] 900—ab
  treatment, d'Herelle's bacteriophage, [Echandia] 238—ab
INFLUENZA, acute exophthalmos after, [Gross] 378—ab
  barometric pressure effect on, 739
  complications, unusual, [Crámer] 902—ab
  etiology, discussed by Pfeiffer, 674
  meningitis, diagnosis, nitrite reaction, [Greenthal] 1374—ab
  Nostrum: See also Grippe nostrum
  nostrum, Ampco Laxative Cold Tablets, 883—BI
  nostrum, Bel-Caps, 952—BI
  nostrum, Breaks-It, 431—BI
  nostrum, Campho-Quinine, 882—BI
  nostrum, Casco Cascara Bromide Quinine Laxative Tablets, 883—BI
  nostrum, Cold Fix Tablets, 882—BI
  nostrum, Diemer's Laxative Grip and Cold Tablets, 1281—BI
  nostrum, EfeDron Hart Nasal Jelly, 952—BI
  nostrum, Flu-Caps, 1195—BI
  nostrum, Fluin, 882—BI
  nostrum, Goodwin's Cold Breakers, 1038—BI
  nostrum, Hyland's 14, 745—BI
  nostrum, Laxacold, 1280—BI
  nostrum, McLean's Tar Wine Cough Balm, 1606—BI
  nostrum, Mentho-Mustard, 1606—BI
  nostrum, Michael's Cold Tablets, 1280—BI
  nostrum, Nip-a-Co Capsules, 1444—BI
  nostrum, Numoss, 952—BI
  nostrum, Nyal Cold Capsules, 1281—BI
  nostrum, Phenyo-Caffein, 952—BI
  nostrum, Pronto, 1444—BI
  nostrum, Red Caps, 1194—BI
  nostrum, Schieffelin Cold and Grippe Tablets, 1038—BI
  nostrum, Smi-Lax, 431—BI
  nostrum, Sternox, 1038—BI
  nostrum, Stout's Cold Tablets, 1195—BI
  nostrum, Yago One Day Cold Tablets, 883—BI
  of Parrots: See Psittacosis
  pneumonia after vaccination, [Tuthill] 1534—ab
  therapeutic effect on pre-existing epilepsy, [Guthrie] 1534—ab
  treatment, sodium salicylate, 425
INFRA-RED Ray Prosto-Therm, 814—BI
  radiators, radiations from, [Coblentz] ★413
  rays treatment of rheumatism, [van Breeman] 381—ab
INFUSION, intravenous, of dextrose, [Askey] 371—ab
INHALANT Chloretone, Creosote and Eucalyptol-Sorensen, 729
INHALATION: See also Dust; Epinephrine; Sodium Chloride; etc.
  drug given by, cause dermatitis venenata? 886
INHALATOR, Davis Inhalator, 200
  Sorensen Therapeutic Inhaler No. 922, 413
INHERITANCE: See Heredity
INJECTIONS: See also under names of substances as Air; Alcohol; Dextrose; Insulin; etc.
  hypodermic, fatal morphine poisoning by, 818
INJECTIONS—Continued
  hypodermic needles, breaking, 423
  hypodermic, rate of absorption of dextrose by, 146; 1283; 1525
  hypodermic, rubber flask connectors for, [Pottenger] ★1503
  hypodermic, subcutaneous tissue changes after, [Eeg-Olofsson] 312—ab
  hypodermic syringe sterilization, 433
  Intra-Arterial: See Arteries
  intramuscular, of B C G vaccine in children, [Chaussinand] 1133—ab
  intramuscular, of erysipelas antitoxin, [Ude & Platou] ★1
  intramuscular, of liver extract, in pernicious anemia, [Aubertin] 695—ab
  intrarenal arterial, of tuberculin in normal and tuberculous animals, [Long] 689—ab
  intraspinal tuberculin treatment in meningitis, [Selter] 830—ab
  intraspinal, use, 1196
  intrathecal, giving, 817
  intratracheal, of epinephrine, [Heubner] 238—ab
  intratracheal, of iodized oil cures lung gangrene, [Eschbach] 1870—ab
  Intravenous: See also Arsphenamine; Dextrose; Epinephrine; Insulin; Morphine; Phenol; Sodium Chloride; Varicose Veins; etc.
  intravenous, of bismuth tartrate, sudden death following, [Curtis] ★1588
  intravenous, of contrast fluids, in pyelography, 609
  intravenous, rubber flask connectors for, [Pottenger] ★1503
  intravenous, simple vein occluder, [Smith] 302—ab
  intravenous therapy with cinchophen, sodium iodide, and sodium salicylate
  intravenous urography with uroselectan, 141; 609; [Swick] ★1403; [Jaches] ★1409; [Braasch & Bumpus] ★1425; 1845
  intravenous, venoclysis, [Hendon] 159—ab; ★1175
  of anterior ethmoid nerves for hay-fever, [Byrd] 1050—ab
  subarachnoid, 817
  Subcutaneous: See Injections, hypodermic
INJURIES: See Trauma; and under names of organs and regions; and Medicolegal Abstracts at end of letter M
INK, dermatitis from rotogravure section of Sunday newspaper, [Ramirez & Eller] ★1082
  Widemann's, methods of invisible writing, [Langen] 1628—ab
IN-NO-SCENT, deodorant, 1525
INSANE: See also Mental Defectives
  Hospitals for: See Hospitals, psychiatric
  mentally ill foreigners in France, 544
  Paralysis of: See Paralysis, General
  sexual sterilization of, 58
  tumors among, [Davidoff] 1619—ab
INSANITY: See also Dementia; Dementia Praecox; Mental Disease; Psychosis; and Medicolegal Abstracts at end of letter M
  A. M. A. resolution on investigation on problem of, 50
  manic-depressive, in identical twins, [Bradley] 445—ab
  psychiatry in relation to crime, 316—E; [Hoffman] 681—C
  treatment, protein, [Robb] 453—ab
INSECTS: See also Aphis lion; Bedbugs; Bees; Flies; Mosquitoes; etc.
  harmful, ultraviolet rays for destroying, 1682
  hosts of tularemia, 667—E
  Imperial Entomologic Conference, 210
  powder (Black Flag), dermatitis due to, [Sulzberger & Weinberg] ★111
  powder (Flit), sensitivity to, [Ramirez & Eller] ★1082
INSIGNIA: See Emblem
INSTITUTE: See also National Institute of Health; Pasteur Institute
  All-India Institute of Hygiene, 1514
  Budapest Royal Hygienic Institute, 1361
  Edward Mallinckrodt Institute of Radiology of Washington University, 1511
  for Child Guidance, fellowships in psychiatry and psychology, 209
  for Medical Research, Heidelberg, 141
  for Mental Hygiene, 1107
  for Radiological Research, 1273
  for Tropical Diseases; Dr. Nocht retires as director; Dr. Fulleborn new director, 611
  hot spring, Osaka Medical College to establish, Japan, 426
  Kaiser Wilhelm-Institut für Zellphysiologie, Rockefeller gives buildings to, 676
  new, Japan, 425
  of Mental Hygiene of Pennsylvania Hospital, Rosenwald Foundation gift to, 1272
  of Preventive Medicine at Strasbourg, 946
  of Reform, Stroopal fraud, 1037—BI
  prophylactic, France, 1189
  State Institute of Public Health of Oslo, 1029
INSTITUTIONS: See also Hospitals; Orphanages; Schools; etc.
  A. M. A. resolution on psychiatric service in penal and correctional institutions, 126
  for feebleminded, congenital syphilis in, [Woodall] 445—ab
  institutional physical therapy in treatment of hypertension, [Watkins] 559—ab
INSTITUTIONS—Continued
  measles prophylaxis in, [Barenberg & others] ★4
  protective value of Dick test, 362
INSTRUMENTS: See also Apparatus; Catheter; Forceps; Syringe; etc.
  cannula for treatment of spontaneous or accidental pneumothorax, [Bigger] ★935
  cardiotachometer to study heart beats, [Boas] 901—ab
  double-barreled laryngeal intubation, for filling lung with contrast medium, [Baisch] 1138—ab
  electrical, for vaporization of inhalants, Sorensen Therapeutic Inhaler No. 922, 413
  flicker hemoglobinometer, [Jenkins] 1297—ab
  for gastrophotography, [Aschner] 369—ab
  grypotonographic, for measuring blood pressure, [von Recklinghausen] 170—ab
  Southey's trocar and cannulas for obstinate edema, [Bland & White], ★1489
  sterilizers, use of luffa sponges in, [Eichelter] 84—ab
  tariff on, changes, of interest to physicians, 43; 50
  ureteral stone dislodger, [McKay] ★794
  used in injecting iodized oil in diagnosis of nasal sinus conditions, [Goodyear] ★1002
  uterine elevator, [Monjardino] 630—ab
INSUFFLATION: See Fallopian Tubes
INSULAR hormone in duodenum, detection, [Laughton] 1377—ab
INSULIN, antagonistic action of ephedrine toward, [Brems] 312—ab
  dosage, caffeine in hypoglycemia from overdosage, [Popper] 1461—ab
  effect on blood acetone in fasting children, [Salomonsen] 1773—ab
  effects on protein metabolism in pulmonary tuberculosis in children, [Mondini] 561—ab
  inactivation by human blood cells and plasma in vitro, [Karelitz] 79—ab
  injections, distribution in diabetes, [Gottschalk] 379—ab
  injections, intravenous, effect, [Nordsted] 312—ab; [Thaysen] 461—ab
  injections, intravenous, effect on gastric secretion, [Roholm] 901—ab; 1954—ab; [Meyer] 1461—ab
  injections, intravenous, vs. blood sugar curve, [Hess Thaysen] 1954—ab
  injections, lipodystrophy from, [Reed & others] ★395; [Nichols] 445—ab; [Rathery] 972—ab
  injections, local changes in subcutaneous tissue after, [Eeg-Olofsson] 312—ab
  plus dextrose for hepatic complications in bile duct calculus, [Abrahamson] 1060—ab
  plus dextrose in cardiac insufficiency, [Loeper] 1918—ab; [Kisthinios] 1948—ab
  plus dextrose in diabetes, [Pucsko] 633—ab
  plus dextrose in diphtheria, [Kostyal] 1787—ab
  plus sodium desoxycholate, enterally administered, effect, [van der Reis] 902—ab
  reactions, local, [Lasersohn] ★199
  Treatment: See also Diabetes Mellitus
  treatment of athrepsia in infants, [Amici] 1872—ab
  treatment of hypotrophic children, [Careddu] 899—ab
  treatment of morphinism, [Anton] 1386—ab
  treatment of undernutrition, [Jacobsen] 1878—ab
  treatment vs. blood chlorine, [Ribadeau-Dumas] 1055—ab
INSURANCE: See also Disability; Medicolegal Abstracts at end of letter M; Workmen's Compensation Acts
  accident and sickness, Physicians Protective Casualty Company, 1931—BI
  health, compulsory, Austrian system, 1986
  health, England, 543; 738; 1030; 1188; 1274; 1436; 1844
  health, increased claims, 1681
  health officers required to have, Italy, 1438
  health, proposed reforms in, Germany, 281
  health, South African Medical Association report on, 61
  life insurance companies health services, 1035
  medical service, 1681
  Metropolitan Life Insurance Company, mortality in relation to impaired hearts, 619
  Netherlands Assembly of Control Physicians, 281
  sickness, [Rappleye] 1207—ab
  social, convention in Kolberg, 141
  social, opposition, to, Belgium, 139
INTELLIGENCE, capacity for acquiring knowledge is hereditary, [Mayo] ★646
  measuring, 1335—ab
  tests, [Anderson] ★1017
INTERFERENTIAL theory of treatment of disease, 1113
INTERMITTENT CLAUDICATION: See Claudication
INTERNAL drainage in pulmonary suppuration, [Faulkner] ★1325
  Secretions: See Endocrines
INTERNATIONAL: For Societies whose names begin with "International" see also under list of societies at end of letter S
  Assembly of Army Medical Services, 140; 1439
  Committee to Standardize Nomenclature and to Prepare Tables in Crystal Analysis, 422

INTERNATIONAL—Continued
  Conference on Tuberculosis, 1926
  Congress of Anatomists, 737
  Congress of Biology, 356
  Congress of Comparative Pathology, 873
  Congress of Cytology, 281; 422
  Congress of Dermatology and Syphilology, 422
  Congress of History of Medicine, 805
  Congress of Individual Psychology, 1362
  Congress of Microbiology, 422; 673; 1190
  Congress of Military Medicine and Pharmacy, 281; 737
  Congress of Neurology, 424; 737
  Congress of Orthopedic Surgery, 1925
  Congress of Radiology, 421
  Congress on Malaria, 606; 1438
  criminologic laboratory, proposed, 352
  Exposition of Dental Hygiene, 1033
  Health Board, study of former yellow fever *patients by, 1514*
  Hygienic Exposition, 812; 1684
  League for Sexual Reform on Scientific Basis, *1101*
  Pediatric Congress, 351
  Professional Association of Physicians, 544; 1925
  Society of Experimental Phonetics, 873
  Union Against Trachoma, 422; 878
INTERNS, anesthetics given by, in hospital, *514; *515; 535—E
  arrangement of services (rotating, straight, etc.) of, *514; *515; 535—E
  experience, summary of reports from 1,591 physicians regarding, *508; 535—E
  hospital intern year required by licensing boards, *533; 535—E; 1433
  hospital intern year required by medical colleges, *533; 535—E
  instruction and supervision of, *508; 535—E
  internship required by Michigan State Board, 1433
  laboratory work done by, in hospitals, *516; 535—E
  obstetrical training in hospitals for, *513; *515; 535—E
  openings for, at Hospital for Joint Diseases, 1753
  physical examinations given by, in hospitals, *515; *516; 535—E
  service, hospital, *508; 535—E
  staff conferences for, in hospitals, *513; 535—E
  *supervision of, *513; 535—E*
  surgical training for, in hospitals, *513; *514; 535—E
  training, hospitals approved for, 289; *517; 535—E
  what an opportunity you have, 644—ab
  writing of histories by, in hospitals, *515; 535—E
  x-ray work done by, in hospitals, *516; 535—E
  year, hospital, medical colleges requiring, for *M. D. degree, *503; *504*; 535—E
INTERVENTRICULAR SEPTUM: See Heart
INTESTINAL INFANTILISM: See Celiac Disease
INTESTINES: See also Cecum; Colon; Gastro-Enterostomy; Gastro-Intestinal Tract; Ileum; Rectum; *etc.*
  anomalies, congenital, [Friedenwald] *906
  anthrax in man, [Solowieff] 1950—ab
  bacterial hypersensitiveness, [Morris] 1862—ab
  bile in, lack of in obstructive jaundice, [Ivy] *1070
  brucella infection, thionin and methyl violet for, [Leavell & *others*] **860*
  cancer, metastatic from lung, [Barnard] 970—ab
  cancer, occult hemorrhage in, [Dahl-Iversen] 702—ab
  cancer, of small bowel, [Rankin] 300—ab
  changes *in* foot and mouth disease, [Mollow] 377—ab
  colibacillurias, [Jahiel] 1782—ab
  content, reaction, [Mann & Bollman] *1722
  disease, sigmoidoscopy vs. x-ray diagnosis, [Yeomans] *1907
  disorders of lower, lifelike and life-sized models for teaching, [Paulson] *198
  disturbances after Madlener's operation for gastric ulcer, [König] 242—ab
  diverticula, multiple, of small, [Boling] *267
  diverticulum, Meckel's acute occlusion caused by inflammation of, [Trémolières] 1134—ab
  diverticulum, Meckel's, torsion, [Schmidt] 832—ab
  flora, biologic attenuation in exclusion of jejunum and duodenum, [Badile] 457—ab
  flora, enterococcic and paraenterococcic, in infants, [Palesa] 632—ab
  flora, in infant and betalactose, 222
  flora, seasonal variations, [Goldwasser] 1456—ab
  foreign body, toothpick, [McLanahan] *1424
  gangrene, treatment, [Garry] 701—ab
  ileus; active and paralytic, [Tyrrell-Gray] 453—ab
  ileus, chemical blood changes in, [Brandberg] 311—ab
  ileus, hypertonic sodium chloride solution intravenously, [Clément] 971—ab; [Schnohr] 1951—ab
INTESTINES—Continued
  ileus in children: roentgen diagnosis, [Weber] 308—ab
  ileus (mechanical) death from absorption of toxins, [Heusser] 903—ab
  ileus, *mushroom*, [Bär] 636—*ab*
  ileus, postoperative, continuous gastric evacuation, [Jancke] 1305—ab
  ileus reflex *in renal and ureteral lithiasis*, [Denéchau] 1299—ab
  implantation of small into large, [Haberland] 900—ab
  infection vs. ear infection in infants, [Wishart] *1084
  infections in acute intestinal intoxication, [Johston] 962—ab
  inflammation, fatal epidemic enteritis, [Hay] 162—ab
  Intoxication: See Toxemia
  irrigation, Austin's Irrigators, 343
  lymphogranulomatosis (malignant), [Ringdal] 978—ab
  motility, nasal spray of surgical pituitary extract controls, [Sophian] 894—ab
  obliteration of distal portion of, after *colostomy*, [Lewin] *1952—ab*
  Obstruction: See also Intussusception
  obstruction, 414—E; [Sikand] 1379—ab
  obstruction, acute, [Smithies] *1899; [Abell] *1903
  obstruction, acute, from Meckel's diverticulitis, [*Trémolières*] 1134—ab
  obstruction by cancer, [Barnard] 970—ab
  obstruction caused by ascarids, 1519
  obstruction, chronic, causes of death in, [*Johnston*] 368—*ab*
  obstruction, ectopic spleen causing, [Salvin] 962—ab
  obstruction, high, uncomplicated, cause of *death, [White] 229—ab*
  obstruction, toxemia in, [Gosset] 235—ab
  occlusion (congenital) from cecal malformation, [Santi] 1998—ab
  occlusion, high, sodium chloride for, [Dogliotti] 456—ab
  occlusion, treatment, [Dogliotti] 696—ab
  Parasites: See also Ascaris; Endameba; Lambliasis; Tapeworm
  parasites, action of pyrethrum, 278
  parasites, hexylresorcinol for, 1592—E
  parasites, study of, in Kentucky, 273
  parasitosis, rare syndromes, [Ranier] 1057—ab
  perforation of small, from trauma, [Inlow] 623—ab
  polypi of large, [Fansler] *1969
  protozoa vs. barium sulphate meal, [Andrews] 1617—ab
  putrefaction, benzene derivatives of, in etiology of cancer, [Grandjean] 1540—ab
  roentgen diagnosis, 1442
  surgery, closure of partially aperitoneal, or short intestinal end, [McWhorter] 301—ab
  sympathetic inhibition in megacolon, [Scott] 1864—ab
  torsion, arrest, [Brouet] 163—ab
  tuberculosis, [Bargen] 756—ab; 1032; [Garvin] *1418
  tuberculosis, clinically controlled cure, [Burnand] 971—ab
  tuberculosis in ex-service men, [Matz] 451—ab
  tuberculosis, secondary and pulmonary, [Rubin] 823—ab
  tuberculosis, surgical treatment, [Bérard] 973—ab
  tuberculous ulceration, [Huang] 629—ab
  tumors, hemangioma of small, [Kortzeborn] 242—ab
  volvulus of small, [Diamant-Berger] 1055—ab
INTOXICATION: See Alcoholism; Poisoning; Toxemia; and Medicolegal Abstracts at end of letter M
INTRACRANIAL PRESSURE: See also Cerebrospinal Fluid, pressure
  brain flap relation to, [Heathcote] 627—ab
  determination, ophthalmodynamometric, [Winther] 1706—ab
  functional examination of labyrinth in diagnosis of incipient endocranial hyperpressure, 878
  salt solution for cerebral dehydration, 1039
INTRADERMAL REACTION, in dermatology; comparative study, [Ramirez & Eller] *1080
  to resorcinol for early diagnosis of phthisis, [Marcialis] 1137—ab
  to salt in fever, [Duden] 449
  to tuberculosis and Pirquet skin reaction, 352
  tuberculin, [Maxwell] 969—ab
INTRAVENOUS THERAPY: See Injections, intravenous
INTROVERT, schizothymic temperament, 1576—ab
INTUSSUSCEPTION complicating visceral (Henoch's) purpura, [Ballin] 158—ab
  irreducible, treatment in children, [Montgomery] 1208—ab
  purpura simulating, [Fraser] 1299—ab
  treatment by taxis, [Lovset] 382—ab
  treatment in adults, [Delore] 972—ab
  treatment in childhood, [Kleinschmidt] 82—ab
INVALID: See Patient
INVISIBLE writing, methods, [Langen] 1628—ab
IODATE, therapeutics, 1196
IODEX, proprietary reagent, 1347
IODIDES, action, 145
  effects of continued administration of, 1916—E
  intravenously vs. malarial therapy in dementia *paralytica*, [Unsworth] *772
  Maltine with Cod Liver Oil and Iron Iodide, 1505
  potassium, and normal electrocardiogram, [McEachern] 1864—ab
  potassium, and pulse rate, [McEachern] 1863—ab
  potassium, complement fixation test in leprosy, 427
  potassium iodide solution for irrigating empyema cavity, 886
  potassium or sodium, and sodium nitrate, give *in solution form? 953*
  Quinine Bismuth Iodide, 797
  quinine bismuth iodide and sodium potassium bismuthyl tartrate, Tartro-Quiniobine, 797
  Siomine, 200
  sodium, action on ciliated epithelium, [Kochmann] 238—ab
  sodium, injections, into blood vessels for arteriography, [Charbonnel] 235—ab
  sodium, intravenous therapy indicated with? 1284
  sodium, treatment of syphilitic angina pectoris, [Schlesinger] 237—ab
  strontium, for amniography, [Menees] 1861—ab
IODINE: See also Goiter; Goiter, Exophthalmic; Hyperthyroidism
  allergy of skin in skin diseases, [Jaffé] 459—ab
  disinfection of skin, Grossich's method, [Curri] 1138—ab
  disodium salt of tetraiodo-orthosulphobenzoic acid for roentgen diagnosis of synovial adhesions, 1749—E
  dosage; physiologic intake should not exceed 0 5 mg. daily, 1979—E
  fed to milk-producing animals as galactagogue harmful for customers? [Maurer] 635—ab
  in commercial brands of milk, [Weston] *835
  in diet, [Stone] *713
  *in liver, [Weston] *836*
  in oranges, [Weston] *834
  in rocks, review by Medical Research Council, 276
  in tomatoes, [Weston] *834
  in vegetables, [Weston] *835
  intravenous urography by means of sodium salt of 5-iodo-2-pyridon-n-acetic acid, 141; 609; [Swick] *1403; [Jaches] *1409; 1425; [Braasch & Bumpus] *1425; [Freudenthal] 904—ab (correction) 1706—ab; 1815
  metabolism and thyroid in syphilitics, [Blach] 310—ab
  metabolism in exophthalmic goiter, [Bier] 378—ab
  preparation for roentgen study of arteries, [Sgalitzer] 1059—ab
  tincture of, compared to metaphen, [Birkhaug] *917
  treatment of pulmonary tuberculosis, [Fraser] 80—ab
IODIZED OIL, in diagnosis of nasal sinus conditions, [Goodyear] *1002
  in exploration of brain and spinal cord, 213
  in streptothricosis, [Singer] 1204—ab
  injections in internal drainage, [Faulkner] *1325
  intramuscular injections in surgical tuberculosis, [Zalewski] 760—ab
  orally, [Wood] 454—ab
  poppy-seed oil in arachnoidal cysts, [Nicolaysen] 978—ab
  poppy-seed oil in diagnosis of chest diseases, 145
  poppy-seed oil, in diagnosis of nasal sinus conditions, [Goodyear] *1002
  poppy-seed oil (intracheally) cures pulmonary gangrene, [Eschbach] 1870—ab
  rape seed oil in diagnosis of nasal sinus conditions, [Goodyear] *1002
  sesame oil, instrument for filling lung with, [Baisch] 1138—ab
  treatment of bronchiectasis, [Stiehm] 1867—ab
IODOFORM test, new reaction of choline and lecithin, [Sánchez] 1057—ab
IODOXYSULPHONATE, sodium, Chiniofon-Searle, 865
IONS, Nos-I-Oas, 1606—Bi
IOPAX for intravenous urography, 141; *609; [Swick] *1403; [Jaches] *1409; 1425;* [Braasch & Bumpus] *1425; [Freudenthal] 904—ab (correction) 1706—ab; 1815
IOWA: See State University of Iowa
IRELAND, MERRITTE W., *reappointed*, 1136
IRIPHAN, liver atrophy from, [Rabinowitz] *1229
IRIS, unusual complication in regular enucleation, [Gjessing] 1306—ab
IRITIS, acute tuberculous; microscopic examination of eye in, [Verhoeff] *582
  as an industrial disease, 551
  Schönlein-Henoch's purpura with, [Benedict] *1577
IRON AND IRON COMPOUNDS, *administration*, [Henderson] 1615—ab
  ferric subsulphate (Monsel's Powder) control *of hemorrhage during boxing match, 957*

IRON AND IRON COMMPOUNDS—Continued
in commercial brands of milk, [Weston] ★835
in diet, [Stone] ★713
in liver, [Weston] ★836
in mineral spring bath, effect, 62
in oranges and tomatoes, [Weston] ★834
iron lung, 1431—E
Maltine with Cod Liver Oil and Iron Iodide, 1505
metabolism in anemia, [Riecker] 1375—ab
one-tenth ounce, in entire body, 1979—E
ore mining and dust inhalation, [Collis] 1377—ab
preparations in treatment of anemia in children, [Rau] 1302—ab
preparations, intravenously, [Hendon] ★1175
treatment, 1119
treatment, appearance of stool after, 955
treatment is illogical in pernicious anemia, 1348—E
treatment of alimentary anemia, [Anderson] 76—ab
IRONIZED YEAST COMPANY, 679—BI
IRRIGANT, Pyridium, 34
urethral, alphanaphthol, 34
IRRIGATION, tidal, for empyema in children, [Hart] 1129—ab
IRRIGATORS, Austin's, 343
IRRITATION roentgen therapy in gynecology, [Seitz] 1705—ab
ISLANDS OF LANGERHANS hormone in duodenum, [Laughton] 1377—ab
ISO-AGGLUTINATION power of human milk and Candido's test, [Ferraro] 237—ab
phenomenon of, 1749—E
ISO-AGGLUTININ content of retroplacental blood, [Hamburger] 1464—ab
ISO-AMYL-ETHYL BARBITURATE: See Amytal
ITALIAN Congress of Dermatologists, 279
Congress of Legal Medicine, 809
Congress of Pediatrics, 877
government experiment station for study of bread making, 947
League for Combating Cancer prize, 737
Society of Laryngology, Otology and Rhinology, 1029
ITCH. See Scabies
Winter: See Pruritus hiemalis
"ITIS," plurals of nouns ending in, 287
IVY, Poison: See Rhus

J

J. L MANUFACTURING COMPANY, 612—BI
JACKSON, A. E., Fenholloway Sulphur Springs Water, 952—BI
JACKSON, C. R., arrested, 1510
JACKSON, CHEVALIER, 1434; 1757
JACKSON, JABEZ NORTH, A. M. A. medal presented to, 118
JACKSON'S MEMBRANE, 1119
JACOCKS, W. P., appointed state health officer, North Carolina, 1186
JAKE paralysis, [Jeter] ★112; [Merritt] 692—ab; 1029; 1672—E; [Smith] 1700—ab
JAMAICA GINGER: See Jake
JAMES, F. J., Paris, Ill., 1688—BI
JAMES D. PHELAN FOUNDATION: See Foundations
JAPANESE, susceptibility to scarlet fever, 664—E
JAPANESE RIVER FEVER, virus, demonstration, [Nagayo] 1210—ab
JARISCH-HERXHEIMER reactions, is arsenic neurotropic? [Guy] ★982
JAUNDICE, acute, latent infectious meningitis in nervous uremias of, [Savy] 235—ab
acute catarrhal, nonsurgical drainage of gallbladder, 683
anemia in, [Jordan] 77—ab; [Peljak] 1306—ab
blood calcium in, [Gunther] 229—ab; 732—E
blood proteins in, [Gunther] 229—ab
blue reaction in, [Van den Bergh] 1951—ab
bradycardia in, vs. bile salts, [Thomas] 161—ab
catarrhal, epidemic, [Pickles] 80—ab
clinical significance, [Blankenhorn] ★1066
congenital atresia of biliary tract, [Baastrup] 764—ab
etiology, hepatitis, [Bénard] 631—ab
etiology, Oddi's sphincter spasm, [Nanu-Muscel] 1702—ab
gallbladder visualization in, [Rudisill] ★1425
heart in, [Ivy] ★1070
obstructive, physiologic disorders incident to, [Ivy] ★1068
obstructive, sedimentation rate as index of hemorrhagic tendency in, [Linton] 158—ab; 1747—E
of new-born, [Goldbloom] 1619—ab
of new-born, oxygen capacity and saturation of, [Goldbloom] 963—ab
paratherapeutic diagnostic value of cholesteremia level, [Vauthey] 1054—ab
paratherapeutic, syphilis-arsphenamine, [Gjessing] 1060—ab
spirochetal, [Villa] 1541—ab
spirochetal, Weil's disease in Italy, [Vallardi] 1783—ab
spleen relation to, [Payne] ★1064
studies on, [Geill] 1464—ab
with gallstones in ampulla of Vater, [Judd & Marshall] ★1061
JAWS cancer, oral appliance for radium treatment, [Williams & Budd] ★1424
diabetes insipidus and osteitis fibrosa polycystica, [Sophian] ★483
functional synergy of mastication and elevation of upper eyelid, [Amat] 1384—ab
lymphangioma, fixation abscess for, [Suner] 976—ab
rigid fixation, due to forward luxation, [Battista] 1383—ab
surgery, clinic for, 1849
transplantation of bone in lower jaw, [Axhausen] 1952—ab
JEFFERSON MEDICAL COLLEGE, Dr. Crider goes to, 1271
JEJUNUM, exclusion, biologic attenuation of intestinal microbism in, [Badile] 457—ab
reaction of content, [Mann & Bollman] ★1722
roentgen diagnosis of ascariasis, [Archer & Peterson] ★1819
JELLY, EfeDron Hart Nasal Jelly, 952—BI
Ephedrine Nasal Jelly-Maltbie, 200
Forkola Jell, 883—BI
JEWS, effect of scarcity of alcohol on death rate, [Bandel] 242—ab
JIMSON weed poisoning in children, [Aikman] ★1662
JOHNS HOPKINS Hospital, courses on diagnosis of cancer, 1185
Hospital, discovery of kitchen helper who was "walking typhoid case," 1027
unit, Osler Clinic, nears completion, 871
University, lectures on medical history, 1811
University, Sir D'Arcy Power lectures at, 1678
University, study of common cold, 1271
University, study of intestinal worms in Kentucky, 273
JOHNSON FOUNDATION: See Foundations
JOINT COMMITTEE ON HOURLY NURSING, 1184
JOINTS: See also Arthritis; Elbow; Hip Joint; Knee; Ostearthritis
allergic, [Freiberg] 1018—ab
bodies, free, etiology, [Sultan] 212—ab
fractures and diseases, exsiccated alum for dressings for, [Benatuli] 1301—ab
orthopedic aspects of chronic rheumatism or arthritis, [Osgood] ★992
roentgen diagnosis of synovial adhesions by disodium salt of tetraiodo-orthosulphobenzoic acid, 1749—E
Tuberculosis: See Arthritis, tuberculous
JONES, Robert Jones Lecture (orthopedic), 804
JOURNALS, American Journal of Cancer to replace Journal of Cancer Research, 872
American Journal of Clinical Pathology, 1355; 1843
Archives of Neurology and Psychiatry, Dr. Casamajor elected to editorial board, 1103
Archives of Otolaryngology, Dr. Fenton elected to editorial board, 206
Atlantic Monthly, cost of medical care, 1266—E
British Journal of Actinotherapy and Physiotherapy, 512
California and Western Medicine, Coffey-Humber treatment for cancer, 1319—E
G. P., sponsored by general practitioners section of British Medical Association, 1518
Good Housekeeping, "The Thin Child and Calcium," 1038
Hygeia, acknowledgment of gift to, 1176
Hygeia and Woman's Auxiliaries, 1512
Hygeia, exhibited, at Lane County fair, 1028
Hygeia for school teachers, 1680
Journal de médecine et de chirurgie practique, centenary, 1758
Journal-Lancet celebrates sixtieth anniversary, 1511
Journal-Lancet, reprints of clinical conferences, 1678
Ladies' Home Journal, Frederick L. Collins on high cost of being sick, 1266—E
Ladies' Home Journal, R. W. Kauffman on ephedrine as a habit forming drug, 731—E
Lancet changes typography, 422
Literary Digest, Carl von Noorden photograph in Fleischmann's yeast advertisement in, [Stone] ★714
Literary Digest on alcohol formation in body, 615; 1119
medical, employing only Latin language to be published, 1438
Medical Interpreter, [Ireland] 1445—C
Physical Culture immortalizing Macfadden, 430—BI
Physical Culture, move to eliminate food faddists from Indiana, 348
Quarterly Leprosy Review, 1599
reporters to cooperate with, 1353
Revue sud-americaine de medecine et de chirurgie, 1847
Rivista di diritto penitenziario, 741
solicitors, fraudulent, 872; 1923
state, refusal of De Castro advertisements of ergot by, ★722; 730—E
The Expert, 1525
Western Journal of Surgery, 1028
JUDD, E. STARR, president-elect of A. M. A., 39—E
JUGENBURG'S METHOD: See under Goiter, Exophthalmic
JUGULAR VEIN: See Veins
JUHL, Dr., held for manslaughter due to carelessness with cyanide gas, 811
JURORS; JURY: See Medicolegal Abstracts at end of letter M

K

KAHLE-treatment of opium addiction, 801—E
KAHN TEST complement effect on sensitiveness of, [Havens] 1206—ab
in amebic infections, [Craig] ★10
in children, evaluation, [Manace] 689—ab
in tinted or cloudy serum, reading results, [Levine] 1866—ab
KAISER WILHELM-Gesellschaft, Rockefeller gives buildings to, 676
Institut für Zellphysiologie, Rockefeller gives buildings to, 676
KALIS, MURRAY C., Flu-Caps, 1195—BI
"KALLIKREIN," 676
KANCHENJUNGA expedition, 1030
KANSAS City College of Medicine and Surgery, no longer recognized, ★501; ★505; 535—E
City Southwest Clinical Society, 601
special instances of medical school mergers, ★507; 535—E
KAPOSI'S DISEASE, medical shock, [Atchley] ★386
KARNOPP, FRED, fined for practicing without license, 541
KARO, corn syrup in infant's feeding [Wright] 1616—ab
vitamins in, 1933
KAUFFMAN, R. W., on ephedrine as a habit forming drug, 731—E
KEBLER, L. F., Basy Bread, 1194—BI
KEEN, WILLIAM WILLIAMS, A. M. A. medal presented to, 118
KEITH, ARTHUR, honorary degree of D.Sc. was conferred on, 1108
KELLOGG Foundation: See Foundations
KEMP'S Sun-Rayed Pure Tomato Juice, 1835
KENTUCKY, special instances of medical school mergers, ★507; 535—E
KENYON, Dr. JOSEPHINE H., on "The Thin Child and Calcium" in Good Housekeeping, 1038
KERATITIS, interstitial, 1447
interstitial, Casey Wood's ointment for, 1041
vaccinal, [Toulant] 1381—ab
KERATOMALACIA association with other deficiency diseases, [Weech] 367—ab
KERATOSES, gonorrheal, without gonorrhea, [Genner] 462—ab
palmar mycotic, 1111
scalpel surgery for, [MacKee & Stone] ★1317
KERNIG'S SIGN, [Hall] ★705
KEROSENE poisoning in children, [Aikman] ★1662
KETOGENESIS, importance of fats in, [Kalf-Kalif] 764—ab
KETOGENIC DIET: See Diet, ketogenic; Epilepsy, treatment
KIDDER'S Cold and Grippe Tablets, 1195—BI
KIDDIE Kanned Vegetables, Fruits and Cereals, 865
KIDNEY: See also Urinary Tract
Abscess: See Abscess, perinephric
actinomycosis, [Recht] 1058—ab
anomaly; single congenital ectopic hydronephrotic, [Marsella] 1703—ab
calculi, ileus reflex in, [Denéchau] 1299—ab
calculi, large bilateral, [Weide] 311—ab
calculi, multiple, and large branched stones, [Walters] ★1336
calculi, radiography during operation for, [Willan] 1701—ab
calculi, treatment, 1117
calculi with gallbladder and ureteral stones, [Young] 156—ab
calculi with polycystic kidneys, [Peacock & Corbett] ★1261
contusions, remote results, 1845
cyst, solitary, [Kreschmer] ★179
damage from merbaphen, [Sprunt] 1375—ab
Disease: See also Hydronephrosis; Nephritis; etc.
disease, acid-base equilibrium in, [Lipets] 1629—ab
disease, advanced, acidosis of, [Drake] 1773—ab
disease, chronic, with amyloidosis, [Borromeo] 697—ab
disease, "Fulton's Renal Compound," 745—BI
disease in infancy and in youth, [Velasco Blanco] 1873—ab
disease, lipoid nephrosis, [Moore] 1131—ab
disease, lipoid nephrosis in tuberculous, [Labbé] 696—ab
disease, lipoid nephrosis of unusual duration, [MacKay] 79—ab; [Ehrich] 79—ab
disease, lipoid nephrosis; salt-free diet, for, [Lemierre] 971—ab
disease, nephrogenous scoliosis, [Blumensaat] 1138—ab
disease, nephrosis, [Blackford] 76—ab
disease, postmortem blood chemistry in, [Polayes] 1127—ab
disease, problem of classification of nephritis, [Simonds] ★930
disease, protein intake vs. nitrogen retention and albuminuria in, [Cowie] 1373—ab
disease, proteins in, [Stone] ★710
disease, so-called tubular nephritis (nephrosis), [Wolbach] 1531—ab

ontinued
threshold value of blood sugar in
ses, [Fell] 1058—ab
ıse of term: nephritis or nephrosis,

, anemia in, [Becher] 1787—ab
, incorrect diagnosis, [Walthard]
ab
, retinal changes in, [Urwyler] 697

r. James' treatment for, 1688—BI
a of scrotum after injecting air into
, [Schüller] 311—ab
by roentgen irradiation, [Halbfas-
706—ab
[Deming] ★251
nephropexy and ureteroplasty for,
rd & Glenn] 156—ab
excess protein diet (high), effect on,
E
in pemphigus, [Ayres] 893—ab
in rheumatism, [Gottlieb] 461—ab
is meat diet a menace? 866—E;
n-Lesses] 1445—C; [Moulton] 1762

postinfectious injuries, [Donath] 460

tests in surgical diseases, [Wilde-
1874—ab
l tests, status, [Thomas] 964—ab
intestinalis in, [Malamud] 681—C
l: See also Nephritis, glomerular
l, histologic changes in essential
ension, [McGregor] 157—ab
l, thrombosed by cancer tissue,
is] 1953—ab
hrotic, awakening suspicion of
n cyst, [Conte] 1215—ab
hrotic half, double, urethral ectopic
from, [Ballenger & others] ★257
hrotic, left large, [Brady] ★338
nuria and sexual weakness, 748
infection, [Goldring] 449—ab
, ascending, [Gruber] 1294—ab
s in nephroptosis, [Deming] ★251
ncy, indicanemia in, 206—E
ncy, renal rickets—an undesirable
ation? 116—E
l arterial tuberculin injections,
] 689—ab
produced by massive doses of vio-
[Spies] 690—ab
See also *Pyelitis*
ascending infection, [Gruber] 1294

onditions in women, [Brady] ★338
nfection, [Gruber] 1294—ab
ntravenous urography, [Jaches] ★1409
ossification, [Mazzini] 1137—ab
yeloscopy-radioscopy, [Jona] 627—ab
resection for hydronephrosis, [Wal-
1944—ab
lphonphthalein (injected intramuscu-
elimination by, [Chisholm] 448—ab
ic, with bilateral nephrolithiasis,
ock & Corbett] ★1261
Deming] ★251
between stomach and, [Steinitz] 1628

study with Uroselectan, 141; 609;
k] ★1403; [Jaches] ★1409; 1425;
sch & Bumpus] ★1425; 1845
therapy of, in corrosive mercuric
de poisoning, [Rybak] 169—ab
of left, [Goinard] 1134—ab
, alveolar so-called carcinomatoid,
ogian] 698—ab
al changes in, in hypertension and
rulonephritis, [Narr] 156—ab
: See also Kidney pelvis
conservative, indications for and
s, [Walters] ★1335
decapsulation in nephritis, [Camp-
1131—ab
for bilateral hydronephrosis,
ius] 310—ab
sensory disturbances after, [Huggins
cy] ★652
ectomy, [Hess] 895—ab
c, [Bancroft] 1615—ab
ormone excreted by, 203—E
osis, diagnostic errors, [Martin] 1135

osis, old standing, [Conybeare] 1297

losis, roentgen examination, [Rinaldi]
—ab
losis, ultraviolet radiation and medical
vs. surgery, [Crance] 297—ab
losis with epididymal tuberculosis,
baerts] 972—ab
osis with exclusion of, [Pecco] 1949

hemangioma, [Mackey] 1868—ab
[Cicala] 1300—ab
[Lebermann] 701—ab
of os lunatum, [Phe-
5
osthumous testimonial
285—BI
ounty (Wash.) Medical Society,
ation on contract practice, 275
Cold and Grippe Capsules, 1195—BI
ineral values, [Weston] ★835

KLING-Gibson Advertising Agency, Marmola quackery, 359—BI
KNAPP, J., fined for illegal practice, 669
KNEE: See also Patella
  dislocation, congenital anterior, surgery for, [Kofman] 1779—ab
  Jerk: See Reflex, patellar
  nodosis rheumatica, [Strauss] 900—ab
  paralytic genu recurvatum, surgical cure, [Mayer] 1779—ab
  right, aneurysm in superior lateral genicular artery of, [Alberti] 457—ab
  semilunar cartilages injuries, [Henderson] 1944—ab
  synovectomy, [Boon-Itt] 1779—ab
  traumatic proliferation of subpatellar fatty tissue, [Sicard] 972—ab
  tumor, lipoma, volvulus of intra-articular pedicled, [Diamant-Berger] 1055—ab
KNEWITZ'S Stopake Powders, 1606—BI
KNOOP, FRANZ, gives Dunham lectures, 1027
KNOXA Cold Tablets, 680—BI
KOCH, Frederick Dugdale a disciple of, 1523—BI
KOCHER fixation operation for prolapse of uterus, [Counseller and Stacy] ★983
KODACOLOR movies of an operation, [Stout] ★1742
KOHLER'S DISEASE of tarsal navicular, [Phemister & others] ★995
KOLAX WAFERS, 814—BI
KOLD BREAKERS, Hi-Grade, 680—BI
KOLMER Test, effect of complement on sensitiveness of, [Havens] 1206—ab
KORSAKOFF'S SYNDROME, [Hall] ★705
  spontaneous subarachnoid hemorrhage with, [Cubitt] 1052—ab
KOTTMANN'S TEST for thyroid function, reliability, [van Vessem] 304—ab
KRASKE, PAUL, death, 282
KRISTENSON'S method for counting blood platelets modified, [Baquero Gil] 165—ab
KRUKENBERG'S TUMOR: origin, [Babes] 1134—ab
KRUSE-SONNE'S Paradysenteric Bacillus: See Dysentery
KRYSOLGAN, dosage in erythema induratum, 885
KÜMMELL'S DISEASE, or posttraumatic spondylitis, 1516
KUPPFER CELLS: See Liver
KYMOGRAPH, localization of tubal strictures by, [Rubin] 754—ab

L

LABOR: See also Cesarean Section; Midwives; Obstetrics; and "Child Birth" under Medicolegal Abstracts at end of letter M
  abnormal, as etiologic factor in mental deficiency, [Dayton] 1050—ab
  analgesia in, [Gwathmey] 1051—ab; [Ford] 1946—ab
  Anesthesia in: See Anesthesia in obstetrics
  antiseptic during, mercurochrome, [Henderson] 220—ab; 667—E; [Mayes] 1208—ab; [Ford] 1946—ab
  blood calcium content in, [Damblé] 306—ab
  calcium partition in, [Cantarow] 1866—ab
  cardiovascular disturbances in, [Herrmann & King] ★1472
  complications, acute pulmonary edema, [Bonn] 893—ab
  complications, granuloma inguinale, [Wilson] ★1093
  complications in cases at Minneapolis General Hospital, [Adair] 1699—ab
  complications, thrombosis, [Polak] 1774—ab
  contracted pelves and disproportion, [McGoogan] 1454—ab
  drugs in, action on uterus, [Bourne] 827—ab
  dystocia (fetal) due to metastatic neuroblastoma of liver, [Hagstrom] 78—ab
  effect on parkinsonism, [Bland & Goldstein] ★475
  hemorrhages after, [Éparvier] 630—ab; [Matthews & Bryant] ★1712
  home vs. general hospital childbirths, [Van Auken] 1296—ab
  in tuberculous, [Matthews & Bryant] ★1712
  indications for episiotomy, 432
  induction, contraindicated ecbolics, [Puppel] 1305—ab
  induction; ecbolic action of choline in placenta, [Wrede] 306—ab
  induction, estrin, [Dodds] 454—ab
  induction, oxytocic actions of drugs, 682
  induction, prolonged pregnancy, [Köhler] 1627—ab
  induction, quinine, death of child after, [Sadler] 1869—ab
  lead effect on isolated uterus, [Devlet-Kildeeva] 1545—ab
  Mortality: See Maternal Mortality
  onset, experiments on, 546
  phenobarbital (luminal) at parturition cause of death of infant, 1690
  presentation, fetal cephalometry in utero, [Thoms] ★21
  Scanzoni maneuver, 883
  skull fracture in childbirth, 746
  test, before cesarean section in contracted pelvis, [Brouha] 1213—ab
  test, Tweedy, [Laferty] 78—ab
LABOR—Continued
  uterine contractions during, determination of duration, [Frey] 760—ab
LABORATORIES, albino rat, McCollum balanced dry diet for, 1039
  American Bio-Chemical Laboratory's Disulphamin, 1689
  A. M. A. Chemical Laboratory: See under American Medical Association
  clinical, approved by A. M. A., 289; 1120
  diagnosis, rôle of clinical pathologist, [Sanford] ★1465
  diagnostic, cooperative, A. M. A. views on, 45
  for research in heart disease at Michael Reese Hospital, 803
  international criminologic, 352
  methods and specialists, [Irons] ★244
  Scientific Crime Detection Laboratory held symposium on crime detection, 668
  studies in epilepsy, [Felsen] 1127—ab
  tests, simpler, 935—ab
  traveling, used in milk survey, New York, 941
  U. S. Hygienic Laboratory method, mouse protection test on antipneumococcus serums, [Cecil & Plummer] ★1550
  U. S. Hygienic Laboratory, National Institute of Health, 1180—E; 1988—C
  U. S. Hygienic Laboratory workers, psittacosis in, [Peterson & others] ★171
  university, reports on activities of, Italy, 1191
  work done by interns in hospitals, ★516; 535—E
  worker, burn with tetra-ethyl lead or ethylene dibromide in, 1446
LABORERS: See Workmen
LABRADOR—a lesson in practical nutrition, 665—E
LABYRINTH, functional examination in endocranial hyperpressure, 878
  irritation, car sickness, [Lebensohn] 1455—ab
LACQUERS, methanol—methyl alcohol, 816
  possible intoxication from, 289
LACRIMAL GLANDS, dacryocystitis and dacryostenosis, treatment, [Kuhlefelt] 1060—ab
LACTATION: See also Colostrum
  effect on ovulation and estrus, [Cunningham] 1621—ab
  human milk flow, [Macy] 367—ab; 1591—E
  iodine fed to animals as galactagogue harmful to consumers? [Maurer] 635—ab
  irradiated milk for nursing mothers for prophylaxis of rickets, [Scheer] 1629—ab
LACTIC ACID: See Acid, lactic; Blood, lactic acid
LACTOGEN, mineral values, [Weston] ★835
LACTOSE, Betalactose and intestinal flora of infant, 222
  digestion of, [Childrey] 1374—ab
  effect of feeding on feces of infants, [Gerstley] 689—ab
  in infant feeding, [Jarvis] 1995—ab
  maltose-dextrin preparation for infants, [Gerstley] ★1233
LADIES HOME JOURNAL: See Journals
LAHEY, DR. FRANK H., Mutter Lecture by, 1513
LAMBERT, ALEXANDER, A. M. A. medal presented to, 118
LAMBLIA, Giardia intestinalis in kidney, [Malamud] 681—C
  surgical diseases of bile tract caused by, [Finkelstein] 829—ab
LAMBLIASIS, Giardia intestinalis in North China, [Tao] 1538—ab
  Giardia intestinalis infestation, complement fixation test in, [Craig] ★10
  with gallbladder and liver diseases, [Georgievskaia] 562—ab
LAMENESS: See Claudication
LAMINECTOMY: See Spine
LAMP, electric tungsten filament; radiations from, [Coblentz] ★411
  Schickerling Ultraviolet Sun Bath Lamp, radiations from, [Coblentz] ★411; 951
LANCET: See Journals
LANDRY'S Paralysis: See Paralysis, ascending
LANDSTEINER, KARL, wins Nobel Prize, 1435; 1749—E
LANGE TEST in children with infantile paralysis, [Peola] 1215—ab
LANGER VACCINE in tuberculosis immunization, [Brachman] 823—ab
LANGERHANS' ISLANDS: See Islands of Langerhans
LANGUAGE, expert translators, 211
  of medical science: Latin, 1138
LAPAROTOMY: See under Abdomen
LARD, digestion of, [Childrey] 1374—ab
LARVA: See Mosquitoes
LARYNGECTOMY, speech mechanism after following, [Pancoast] ★1321
LARYNGITIS, acute obstructive, [Bradford] 1126—ab
  in tonsillectomized children, [Kaiser] ★810
  sicca, [Richards] ★769
  streptococcus, acute; also diphtheritic, [Richards] ★768
  tuberculous, larynx perforated from, [Tyson] 1455—ab
LARYNGOLOGIST, observations, [Lynch] ★1795
LARYNGOLOGY, A. M. A. Section on: See under American Medical Association
  Congress of Italian Society of Laryngology, Otology and Rhinology, 1029

LARYNGOSCOPE in laryngeal disease, [Jackson] ★1322
LARYNX disease, diagnosis, [Jackson] ★1322
cancer, [Lynch] ★1795
double-barreled laryngeal intubation instrument for filling lung with contrast medium, [Balsch] 1138—ab
edema, postoperative, [Richards] ★770
foreign bodies obstructing, [Richards] ★767
obstruction, acute, [Richards] ★766
paralysis, Congress of Otoneuro-Ophthalmologic Societies discuss, 1439
perforation from tuberculous laryngitis, [Tyson] 1455—ab
roentgenology, [Pancoast] ★1318
thyroid surgery and, [Nordland] 1866—ab
tuberculosis, curative paralysis of recurrent nerve for, [Schugt] 169—ab
tuberculosis, Gerson's diet in, [Pöhlmann] 308—ab
tuberculosis, treatment, [Björkman] 702—ab; [Kellam] 967—ab
tumor, papilloma, [Lynch] ★1795
tumors, laryngoscopic plus roentgen diagnosis, [Jackson] ★1322
LASEQUE'S SIGN in sciatica, [Hall] ★706
LASHLEY, KARL S., second Harvey Lecture by, 1512
LASKER Foundation: See Foundations
LATIN as the language of medical science, 1138
LATRINES: See Privy
LAU YIT CHO, Chinese Herb Company, 745—BI
LAUTH'S Violet: See Thionin
LAVA soap, dermatitis from, 1525
LAVERN, ALPHONSE, semicentennial of a great discovery, 1269—E
celebration in memory of, 1846
LAVOISIER, 1493—ab
LAWS: See also Legislation
criminal law from psychologist's standpoint, 675
LAWYERS: See Attorneys
LAXACOLD, 1280—BI
LAXATIVES: See Cathartics
LEAD, colloidal injection, excretion in urine and feces after, [Newman] 629—ab
effect on isolated uterus, [Devlet-Kildeeva] 1545—ab
Maltese X-Ray Lead Glass, 865
plus selenium for cancer, [Todd] 1298—ab
poisoning and Eighteenth Amendment, [Moore] 1775—ab
poisoning, callus formation delayed in, 881
poisoning due to inhaling and swallowing lead dust, [Hegna] 978—ab
poisoning from new urine, [Nedok] 83—ab
poisoning from tap water, 1684
poisoning, minor signs of plumbism in childhood, [McDonald] 695—ab
prevention of absorption from gastro-intestinal canal, [Miyasaki] 238—ab
resistance to, [Weyrauch] 241—ab
LEAGUE FOR COMBATING VENEREAL DISEASE, 1846
LEAGUE OF NATIONS Health Committee, 1754
inquiry on child mortality, 351
malaria commission, 606
program for China, 736
report on illicit drug traffic, 605
LECITHIN, new reaction, [Sánchez] 1057—ab
LECTURES: See also under names of lectures as Dunham; Harvey; Scripps; etc.
on medical history at Johns Hopkins, 1841
on obstetrics, 1751
psychic treatment of dementia praecox by, [Lazell] 1130—ab
LEECH, P. N., A. M. A. rebuttal evidence at Senate investigation of ergot, ★728; 730—E
LEFT-HANDEDNESS vs. eyedness, [Quinan] 623—ab
LEG: See also Amputation; Ankle; Extremities; Femur; Foot; Fractures; Hip Joint; Tibia; etc.
applicants for automobile license shall have no disqualifying defects, 47
blastomycosis, [Lewis & others] (correction), 56
gangrene, varicose veins slough, [Kilbourne] ★787
Milk Leg: See Phlegmasia alba dolens
ulcer, value of arteriography, [Charbonnel] 235—ab
ulcers cured by obliteration of varicose veins, [Isaak] 1629—ab
LEGAL MEDICINE: See Medical Jurisprudence; Medicolegal
A. M. A. Bureau of: See under A. M. A.
LEGG-PERTHES' DISEASE, [Phemister & others] ★995
LEGISLATION: See also Medical Practice Acts
abolishing speed limit of automobiles, England, 738
A. M. A. Committee on Legislative Activities, (V. 94) 2073; 45; 1103
A. M. A. Reference Committee on Legislation and Public Relations, 45; 49
A. M. A. resolution on federal aid for maternal welfare, 44; 49
effects of law limiting sale of alcohol, Belgium, 1602
incorporating National Institute of Health, 1180—E
medical bills in Congress, 56; 136; 1923
new bill on activity of druggists and pharmacists, Roumania, 1113
LEGISLATION—Continued
nullify law for preventing precocious maternity in India, 1188
on healing art in Georgia, [Elrod] 75—ab
on maritime quarantine, Turkey, 547
pertaining to diphtheria and scarlet fever, Prussia, 743
pertaining to occupational accidents, 545
pertaining to vivisection modified, Italy, 60
propose compensation for automobile accidents, Wisconsin, 1434
proposed ethical order of physicians, Belgium, 1032
public health law, Turkey, 426; 677
regarding proprietary medicines, Germany, 548
regarding silicosis, 277; 606
regarding sterilization of mental defectives, 605; 1188
regarding training of nurses for children, Germany, 812
regarding venereal disease, Bucharest, 811
regulating sale of strychnine, [Aikman] ★1661
resolution on care of veterans, 44
vaccination law revised, Germany, 611
World War Veterans' Allowance Act, Canada, 542
LEICHSENRING'S method for treating larynx tuberculosis, [Schugt] 169—ab
LEIDY, JOSEPH, discoverer of trichina, [Ward] 1988—C
LEINER, Professor, death, 676
LELAND STANFORD UNIVERSITY, Dr. LeRoy C. Abbott goes to, 1512
LEMON juice used for invisible writing, [Langen] 1628—ab
LENDLE, L., modern tendencies in anesthesia, ★1451
LENHART, CARL H., 1354
LENS: See also Glasses
binocular loupe, [Lahey] ★1975
liquid petrolatum for oil immersion lens, 1609
tinted, status, [Fink] 1207—ab
LEPROSY, bacillemia in, 1519
Bacillus leprae, demonstrating, [Hu] 629—ab
blood chemistry, [Otero] 896—ab
British Empire Leprosy Relief Association fight against, 1599
complement fixation test in, 427
etiology, role of constitution in, [Kusnetzow] 376—ab
fate of offspring of lepers, 948
in Africa, 351
in the Philippines, 1753
medical service for native territories, 712
physical examinations required before marriage, Turkey, 1360
treatment, chaulmoogra oil action on skin, 363
treatment, sixty-five recoveries, 1597
treatment, vaccine, [Williams] 558—ab
LEPTOSPIRA, plural of, 1933
LÉRI, Dr., death, 1190
LESOL, new names for old products, 1933
LETTUCE concentrate in alimentary anemia, [Weston] ★831
LEUCOTROPINE, liver atrophy from, [Rabinowitz] ★1229
LEUKEMIA, acute, clinical signs, [Gwyn] 691—ab
acute, inception, [Milhorat] 1865—ab
acute lymphocytic, hog spleen intramuscularly cures, [Pearce] 1210—ab
acute myelogenous; [Salmonsen] 637—ab
acute, with unusual cell forms in blood, [Bowcock] 447—ab
lymphatic, [Busman & Woodburne] ★1253
lymphatic, cytologic study, [MacCarty] 963—ab
medullary lymphoblastic, [Liotta] 1300—ab
monocytic, 427
monocytic, acute (histiocytic), [Dameshek] 1940—ab
myeloblastic, cure, [Gloor] 1059—ab
myeloid, chronic, spinal syndrome in, [Hettfleisch] 1217—ab
myeloid, efficacy of spleen irradiation in, [Rikl] 902—ab
myeloid, roentgen treatment, [Béclère] 971—ab; [Hammerschlag] 1705—ab
myeloid, spleen-lymph node syndrome in, [Doumer] 972—ab
myeloid, with priapism an early symptom, [Achard] 759—ab
LEUKOCYTES, acute infectious mononucleosis, [Gorham & others] 72—ab
count, 270—E
count, differential, in infancy, [Smith] 1373—ab
count, effect of sympathetic stimulation on, 807
count in phthisis, [Finner] 227—ab
count, initial, prognostic and differential, in pneumonia, [Middleton] 444—ab
count, low, during digestion, [Loeper] 1135—ab
counting, antiseptic to prevent spores in acetic acid solution for, 817
counting, differential, technic, [Plonskier] 1463—ab
in blood of children, [Erlich] 1213—ab
Lewis-Gregory moving pictures of, 1509—E
monocytes reactions in tuberculous infection, [Capuani] 974—ab
role in tuberculosis, [Brock] 227—ab
LEUKOCYTES—Continued
serologic group differentiation of organism; [Thomsen] 382—ab
LEUKOCYTOSIS, action of amniotic fluid on, [Giordanengo] 974—ab
as postoperative reaction, [Berceanu] 1381—ab
eosinophilic hyperleukocytosis of tropical origin in child, [Armand-Delille] 696—ab
in acute cervical adenitis, [Baum] ★1831
in multiple sclerosis, [McKenna] 1292—ab
index of rheumatic infection, [Ernstene] 444—ab
LEUKOPEDESIS, gastric, [Santomauro] 1703—ab
visceral, [Loeper] 1135—ab
LEUKOPENIA, differential diagnosis in, 885
effect of sympathetic stimulation on, 807
infectious mononucleosis with, [Bradshaw] 559—ab
resembling agranulocytosis with recovery, [Thompson] 891—ab
sepsis with, in children, [Bigler] 1373—ab
LEUKORRHEA in virgin, [Sharman] 1868—ab
menstruation and light sports, 421
nostrum, "Anti-Leuco-Tabs," 814—BI
nostrum, Reno's Antiseptic Wash, 1281—BI
treatment, blood of pregnant woman and follicular fluid for, [Maurizio] 828—ab
Trichomonas vaginalis, [Faulkner] 1208—ab
LEVINE, JACOB D., food faddist, 913
LEVULOSE test, for hepatic efficiency, [Elmer] 827—ab
LEWIS, ERNEST S., celebrates ninetieth birthday, 1881
LEWIS, THOMAS, Belt fellowships for medical research, 672
LEWIS-Gregory moving pictures of fertilized mammalian eggs, leukocytes and tissue cultures, 1509—E
LEX-ZEYEN inhalation apparatus, [Siegel] 166—ab
LEYDEN cowpox substance, [Gorter] 978—ab
LIABILITY for articles stolen from waiting rooms, 876
LIBEL suit of Frederick Dugdale against Lowell *Sun*, 1523—BI
LIBRARY, A. M. A. places NOSTRUMS AND QUACKERY in public libraries, 206
Association of Medical Record Librarians of North America, 1029
Association of Special Libraries and Information Bureaux, expert translators, 211
cinematographic, 59
medical, gifts to University of Chicago, 418
LICE with Mexican typhus virus, [Castaneda] 1940—ab
LICENSING BOARDS: See State Boards
LICENSURE: See also Medical Practice Acts; National Board of Medical Examiners; State Board; State Board Reports
Annual Congress on, Feb. 16-18, 1931, 1918
diploma mill investigation, reinstatement of physicians, Connecticut, 207
diploma mills, ★504; 535—E
diploma of Damaso Tumaneng Samonte, lost, 871
diplomas for specialists in ophthalmology, 140
diplomas issued by French faculties of medicine, 1925
"Dr." Fred Karnopp fined for practicing without license, 511
fraudulent license returned to "Dr. Paola S. Marzio," 1106
General Medical Council and India, 137; 423; 1924
of masseurs and title of doctor, Minnesota, 510
osteopaths and chiropractors seek separate examination boards, Illinois, 418
prosecutions by Board of Medical Examiners, New Jersey, 602
reciprocity license denied to Dr. Maxmilian L. Herzig, graduate of diploma mill, 870
requirements raised, West Virginia, 1922
revocation of John R. Brinkley's license, 941
revocation of licenses for illegal operations, 539
unqualified practice cannot be suppressed in England, 544
LICHEN nitidus, gold sodium thiosulphate for, [Niles] 1533—ab
simplex or dermatitis venenata, 145
LIEBEN test, [Sánchez] 1057—ab
LIFE, Alfred Adler on "The Meaning of Life," 1362
Duration: See Longevity; Old Age
Insurance: See Insurance
physical reasonableness of, [Hill] ★1393
LIGHT: See also Sunlight
as a defense against disease, 1363
for clerical work, 276
German Society for Light Research, 1029
loss of, due to smoke, 1921
Therapy: See Heliotherapy
LIGHTNING stroke, polyneuritis and neurosis after, [Urechia] 81—ab
LILY-OF-THE-VALLEY, prescription of Copernicus, 1114
LIMBS: See Extremities
Artificial: See Hand
LIME dust, soreness of lungs from industrial exposure to, 67
water in infant feeding, 1011

LINDAU'S DISEASE, [Moller] 382—ab
LINEN, ordinary dry heat domestic oven for sterilization of, 288; 739
disinfection, after pulmonary tuberculosis, 146
what happens to suture material? [Christ] 1139—ab
LINIMENT, R. P. Liniment, 680—BI
Ward's Celebrated Liniment, etiology of asthmatic attacks, 885
LINOTYPE operator, dermatitis from soap and cleansing without irritation in, 1525
LINSEED oil in dilute ammonia solution for invisible writing [Langen] 1628—ab
LIPACIDOSIS, protective tropical, against scarlet fever, 664—E
LIPASE to confer immunity against tubercle bacilli, [Fontela] 306—ab
LIPEMIA: See Blood fats
LIPODYSTROPHY from insulin injections, [Reed & others] ★395; [Rathery] 972—ab
progressive, of lower extremities, [Smith] 368—ab
LIPOID histiocytosis, 1102—E
in urine [Brice] 692—ab
Nephrosis: See Kidney disease
power to form antibodies, 674
rôle in immunity, 674; 1190
LIPOMA, intra-articular pedicled, of knee, volvulus of, [Diamant-Berger] 1055—ab
of mediastinum, [Yater] 445—ab
of pancreas, 202—E
scalpel surgery for, [MacKee & Stone] ★1317
LIPS, rouge for, poisoning from, 739
congenital hemangioma, 1990
LIQUOZONE, 1365—BI
LITERATURE: See also Books; Book Notices and at end of letter B; Newspapers; Poets; Writers; etc.
national fund for promoting, France, 1758
LIVER: See also Arteries, hepatic; Veins, hepatic
abscess cured by venoclysis, [Hendon] ★1175
Acute Yellow Atrophy: See Liver atrophy
agar as basis for eosin-methylene blue plates for cultivating brucella from stools and bile, [Amoss & Poston] ★482
amebic abscess, [Wilmoth] 295—ab
atrophy, acute yellow, with neoarsphenamine injections, [Bortin] 1295—ab
atrophy from cinchophen preparations, [Rabinowitz] 345—E; ★1228; [Vajda] 1875—ab
atrophy in cholangeitic processes, [Czygan] 167—ab
calf's, and yeast, antianemic substance in, 1759
cancer, primary, [Strong] 691—ab
cholecystitis effect on, [Deaver] ★1642
chromogen in, after carotene feeding, 937—E
cirrhosis, diabetes disappears during development of, [Bordley] 1048—ab
cirrhosis, occlusion of hepatic veins with, [Hutchinson] 694—ab
cirrhosis, pancreatic insufficiency in, [Herbain] 971—ab
cirrhosis, venous murmurs in, [Gwyn] 1531—ab
copper effect on, 1022—E
damage in obstructive jaundice, [Ivy] ★1068
Diet: See also Anemia; Anemia, Pernicious; Liver extract; Liver feeding; Liver preparations; Liver treatment
diet, [Stone] ★710; [Friedemann] 1874—ab
diet and reticulocyte reaction, [Wahlberg] 1140—ab
diet, effect on spinal symptoms, [Lottig] 459—ab
diet in scurvy in adults, [Mettier & others] ★1089
diet in sprue, [Bassler & Lutz] ★1961
diet, mechanism of action, 1114
disease, lambliasis in, [Georgievskaia] 562—ab
disease, splenomegalia in, bandage sign, 1110
disorders, alkali reserve in, [Pacetto] 376—ab
disorders, in cinchophen poisoning, [Vajda] 1875—ab
disorders, lactic acid in blood in, [Jervell] 382—ab
draining, [Mandl] 1544—ab
extract, aqueous, [Conner] 79—ab
extract, deleterious effect, [Stone] ★712
extract, effect on blood sugar, [Bowen] ★30
extract effect on diabetes in anemia, [Bowen] ★30
extract for toxemias of pregnancy, [Reycraft] 621—ab
extract in eclampsia, [Matters] 897—ab
extract in essential hypertension, [Ayman] ★247
extract in sprue, [Castellani] 80—ab
extract, intramuscular injections, [Aubertin] 695—ab
Extract No. 343 in anemia, [Castle] 163—ab; [Giffin & Watkins] ★590
extract, qualitative determination of potency, [M'Gowan] 234—ab
extract, single massive doses, [Riddle] 444—ab
extract, substance which is effective in, [Minot & Cohn] 73—ab; [Castle] 163—ab; 1114; 1509—E
extract treatment, myelopathy develops in pernicious anemia during, [Norn] 764—ab
extract, use in cancer appears contraindicated, [Stone] ★712
factors in peptic ulcers, [Berg] 230—ab
LIVER—Continued
feeding, effect on sweat secretion, [Fröhlich] 903—ab
feeding, fetal liver in secondary anemia, [Giffin & Watkins] ★588
feeding in neurologic conditions, [Wilkinson] 451—ab
fibrinogen and, 869—E
fluke vs. primary carcinoma, [Strong] 691—ab
function, defective, cause of skin lesions, [Smithies] 447—ab
function test, galactose vs. levulose, [Elmer] 827—ab
function tests, value, [Piersol] 1616—ab
glycogen deposit in, vs. raw egg yolk, [Abelin] 1785—ab
glycogenic functioning in traumatic shock, [Scarpello] 1460—ab
hepatodiaphragmatic adhesions as cause of upper abdominal pain, [Hinton] ★1744
infections, Bacillus mucosus-capsulatus, [Carnot] 631—ab
infective hepatitis due to spirochetes, [Villa] 1541—ab
inflammation, association with gallbladder lesions, [Flint] 373—ab
inflammation, congenital atresia of biliary tract, [Baastrup] 764—ab
inflammation, jaundice from, [Bénard] 631—ab
inflammation, relation to chronic cholecystitis, [Koster] 300—ab
inflammation, sequel of biliary infection, [Deaver] ★1641
inflammation, severe, after appendicitis, [Tagliavacche] 1541—ab
insufficiency, Accademia Lancisiana discuss, 947
insufficiency in infantile syndrome, [Jumon] 1299—ab
Kupffer cells vs. dextrose intravenously, [Koster] 370—ab
mercury in, (correction) 56
mineral content of beef, hog, and calf liver on dried sample, [Weston] ★836
pains, treatment, Sulphocol and Sulphocol Sol, 594
perforation by fishbone, [Douglas] ★265
preparations, potency of fresh, cooked, dry and alcohol-extracted, [McHargue] 756—ab
roentgen demonstration with thorium dioxide solution, 1761
strangulation of left lobe, [Johnson] ★662
Sulphocol and Sulphocol Sol effect on, 594
syphilis (tertiary) simulating Banti's syndrome, [Korns] 368—ab
test, metabolic activity, dextrose tolerance, [Althausen] 1375—ab
toxemia in menstrual disorders in adolescent girls, [Lawrence] ★1148
Treatment: See also Anemia; Anemia, Pernicious; Liver diet; Liver extract; Liver feeding; Liver preparations
treatment, effects on spleen function, [Izar] 1625—ab
treatment, hyperchromatic anemias resistant to, [Holboll] 461—ab
treatment in diabetes in pernicious anemia, [Bowen] ★30
treatment in eclampsia, [Matters] 897—ab
treatment in paroxysmal hemoglobinuria due to cold, [Lichtmann] 634—ab
treatment in splenectomized persons, [Greppi] 761—ab
treatment of hepatic complications in bile duct calculus, [Abrahamsen] 1060—ab
treatment, oysters as substitute for, [Weston] ★834
treatment, parenteral, [Achard] 1702—ab
treatment, physiologic observations on Kachenjunga expedition, 1030
tuberculosis, 1032
tumor, fetal dystocia due to metastatic neuroblastoma of, [Hagstrom] 78—ab
tumor, melanoma, congenital malignant metastatic, from placenta, [Weber] 169—ab
tumor, primary, [Ascoli] 1300—ab
tumor with twisted pedicle, [Petit-Dutaillis] 164—ab
LOAN, Student Loan Fund created by Nebraska State Medical Association, 135
LOBSTER, boiled, typhoid apparently spread by, [Anderson] 1456—ab
LOCKWOOD (Mrs.), "Wonder Remedy for Men," 285—BI
LOCKWOOD'S gubernacular tails, [Robertson] ★191
LOCKYER collection of obstetric and gynecologic specimens, 1436; 1516
LOCOMOTION, disturbances of, diagnosis of spinal cord tumors, [Woltman] ★1398
LOCOMOTOR ATAXIA: See Tabes Dorsalis
LOGIE, D. B., death, 1441
LOMONACO, DOMENICO, death, 59
LONDON School of Tropical Medicine, memorial to Manson, 351
LONGEVITY: See also Old Age
causes of increasing mortality from cancer, 807
LOTIONS, shaving, hypersensitiveness to quinine in, [Burgess] 691—ab
LOTZ, GEORGE, 814—BI
LOU WING, Chinese Herb Company, 715—BI
LOUPE, binocular, [Lahey] ★1975
LOUSE: See Lice
LOWENSTEIN'S Ointment: See Diphtheria immunization
LUCAS, WILLIAM PALMER, honored, 600
LUCIDOL: See Benzoyl peroxide
LUCKY STRIKE CIGARETS testimonial industry, 679—BI
LÜBECK disaster with BCG vaccine, 352; 356; 357; 676; 1034; 1761; 1927
LUFFA sponges, use in instrument sterilizers, [Eichelter] 84—ab
LUMBAR *Puncture: See Spinal Puncture*
Sympathectomy: See Sympathectomy
LUMINAL: See Phenobarbital
LUNGS: See also Pleura; Pneumothorax; Respiratory Tract; etc.
Abscess: See also Lungs, amebic abscess; Lungs, suppuration
abscess, diagnosis, [Pinchin] 1781—ab
abscess, emetine treatment, [Fliederbaum] 1624—ab
abscess, treatment, [Spector] ★789; [Alexander & Buckingham] ★1478; [Pinchin] 1781—ab
actinomycosis, [Donalies] 634—ab
actinomycosis, primary, [Oldenburg] 977—ab
amebic abscess, [De Lavergne] 696—ab; [Labbé] 1135—ab
anomalies, accessory lobe (azygos lobe) of upper lobe, [Mackmull] 1204—ab
as contractile organ, [Luisada] 761—ab
asbestosis, 1431—E
asbestosis bodies in, [Lynch & Smith] ★659
calcified nodules in substance of, [Opie] ★1152
cancer causing intestinal obstruction by metastasis, [Barnard] 970—ab
cancer metastases to nervous system, [Davison] 1940—ab
cancer, physical signs in, [Jackson] ★639
cancer, primary, [Fremont-Smith] 1207—ab
cancer, small cell, [Karsner] 1774—ab
Cavity: See also Tuberculosis, Pulmonary
cavity, hemorrhage into, [Hochstetter] 762—ab
cavity, results of phrenicectomy in different types, [O'Brien] ★651
collapse, acute massive atelectatic, in hemoptysis, [Müller] 382—ab
collapse, atelectasis, [Yegge] 1940—ab
collapse, atelectasis, acapnia as factor in, [Henderson] ★572
collapse, atelectasis vs. infection, [Johnson] 1940—ab
collapse, effect on electrocardiogram, [Hansen] 1204—ab
collapse in neoplastic and other diseases of, [Jackson] ★639
collapse, massive (active lobar collapse), [Morison] 1131—ab
collapse, postoperative atelectasis, allergy in, [Wilmer] 158—ab
collapse, postoperative, bronchoscopic observations in, [Brown] ★100
complications, postoperative, [Stahnke] 831—ab; [Gibbon] 1777—ab
Disease: See also Lymphatic System; Pneumonia; Spirochetosis; Streptothricosis; etc.
disease and dust, [Russell] ★1714
disease, indicanuria in, [Griesbach] 459—ab
disease, induced paralysis of diaphragm for, [Yates] 1863—ab
disease, physical signs in, [Jackson] ★639
disease, quinine for, [Mazylo] 461—ab
disease with spirochetes in sputum, [Albot] 560—ab
edema (acute) during pregnancy and labor, [Bonn] 893—ab
edema, pathogenesis, [Wolfer] 1621—ab
fat metabolism and, 800—E
foci in lymphogranulomatosis, [Saupe] 1303—ab
gangrene in miners, 1033
gangrene, intracheal injection of iodized oil cures, [Eschbach] 1870—ab
gases in, behavior, [Anthony] 1627—ab
hemorrhage in mixer of talcum powder, 681
hemorrhage into cavity in, [Hochstetter] 762—ab
hemorrhage, what percentage is tuberculous in origin? 681
hypoventilation, postoperative, [Overholt] ★1181
infection, crossed from right to left lung, [Cole] 1912—ab
infection vs. atelectasis, [Johnson] 1940—ab
inflammation, nontuberculous suppurative, [Alexander & Buckingham] ★1478
isolating from urine a substance which exerts dilating action on vessels of, 676
lesions, in rheumatism, [Findlay] 1131—ab
nerve innervation of, in status asthmaticus, [Stern] 559—ab
pathogenesis of nongonorrheal epididymitis, [Puhl] 81—ab
puncture in acute lobar pneumonia, [Stewart] 1298—ab
reactions at tuberculous focus in, [Leendertz] 900—ab
roentgen study after poisoning with illuminating gas, [Israelski] 700—ab
roentgen study, instrument for filling lung with contrast medium, [Balsch] 1138—ab
sarcoma, primary, in child, [Acuña] 1512—ab
sarcoma, (racemose) metastatic from vagina, [Dugge] 241—ab
sclerosis in miners, 1033
siderosis [Bohrod] 1205—ab

LUNGS—Continued
  soreness, from industrial exposure to inhalations of lime dust or sodium chloride, 67
  suppuration, [Alexander] ★1478
  suppuration, internal drainage in, [Faulkner] ★1325
  Tuberculosis: See Lymphatic System, tuberculosis; Tuberculosis, Pulmonary
  Vital Capacity: See Vital Capacity
LUNGSAVA, 951—BI
LUPUS vulgaris, chronicity, [Dittrich] 900—ab
  vulgaris, scalpel surgery for, [MacKee & Stone] ★1317
LYDIN, 201
LYE, for disinfecting linens after pulmonary tuberculosis, 146
  poisoning in children, [Aikman] ★1662
LYING-IN-HOSPITALS: See Hospitals, maternity
LYMPHANGIOMA, congenital cystic, fixation abscess for, [Suner] 976—ab
  of abdomen, [Hill] 1781—ab
LYMPHATIC SYSTEM: See also Leukemia, lymphatic
  autogenous gland filtrate in Hodgkin's disease, [Hanrahan] 623—ab
  cervical adenitis before and after tonsillectomy, [Kaiser] ★838; ★839
  cervical adenitis in children, tonsillectomy in, [Baum] ★1829
  cervical gland enlargement in childhood, [Gay] 75—ab
  demonstration in cadavers, 747
  intrapulmonary nodes disease, [Gerhartz] 1217—ab
  node preparations for actinomycosis, [Trauner] 1305—ab
  relationship between nerve plexuses and nodes of abdomen, [Kiss] 1293—ab
  spleen-lymph node syndrome in myeloid leukemia, [Doumer] 972—ab
  swelling on penis, 684
  tuberculosis diffused to abdominothoracic lymphatics, [de Benedetti] 1137—ab
  tuberculosis in streptococcal infections of bone, [Phemister & others] ★995
  tuberculosis of perigastric nodes, stomach ulcers after, [Dagnini] 1625—ab
  tuberculosis of pulmonary and tracheobronchial gland in childhood, [Hempelmann] 152—ab
  tuberculosis of tracheobronchial nodes, [Opie] ★1152
  tuberculosis of tracheobronchial nodes of lung, [Jordan] 1536—ab
  tuberculous adenopathies, roentgen treatment, [Belot] 303—ab
  tuberculous cervical adenitis, treatment, 550
  tuberculous glands, treatment, 1197
LYMPHOBLASTOMA and tuberculosis, [MacMahon] 158—ab
LYMPHOGRANULOMATOSES, cytologic study, [MacCarty] 963—ab
  gastro-intestinal, treatment, [Sussig] 1544—ab
  malignant, of intestine, [Ringdal] 978—ab
  pulmonary foci in, [Saupe] 1303—ab
  treatment, autogenous gland filtrate, [Hanrahan] 623—ab
  treatment, x-ray, [Billich] 1953—ab; [Doornkaat-Koolman] 1953—ab
  treatment, x-rays; radium, and thorium X, [Aubertin] 828—ab
  tuberculosis and, [MacMahon] 158—ab
LYMPHOSARCOMA, [Davison] 228—ab
  cytologic study, [MacCarty] 963—ab
  of testes, [Wollheim] 693—ab
  roentgen sensibility of, [Krebs] 462—ab

M

McCALLUM, GEORGE B., honored, 1841
McCOLLUM balanced dry diet for laboratory albino rat, 1039
McCOY, FRANK, move to eliminate food faddists from Indiana, 348
McDOWELL, EPHRAIM, honored, 1595
MACFADDEN, BERNARR, 348; 430—BI
McGREGOR'S third inguinal ring, [Robertson] ★191
MACK FOUNDATION: See Foundations
MACKALL, LEONARD L., consultant in bibliography, 420
MACKENZIE, R., death, 1441
McKENZIE, ROBT. T., retires, 1434
MACKENZIE MEDAL: See Prizes
McKESSON'S Vitamin Concentrate of Cod Liver Oil, 1347
McKINLEY, E. B., susceptibility to scarlet fever, 664—E
McLEAN'S Tar Wine Cough Balm, 1606—BI
MACROPHAGES, hydrophagocytosis, 1509—E
MADAME X DOUCHE TABLETS, 814—BI
MADLENER'S operation for gastric ulcer, [illegible]
[illegible] and ether to remove cod liver oil stains, 953
  chloride, treatment of adenocarcinoma, [Bolaffi] 698—ab
  Hyposulphite: See Magnesium thiosulphate
  lack of, in human organism, 1110
  oxide, effects of prolonged use, 1608
  Plant's Magnesia Wafers, 935
  salts intravenously, venoclysis, [Hendon] ★1175
  sodium and potassium in diet, [Stone] ★713
MAGNESIUM—Continued
  sulphate and glycerin packs for erysipelas, [Ude & Platou] ★1
  sulphate, hypertonic solution in post operative accidents in cerebral surgery, 1682
  sulphate in obstetric analgesia, [Gwathmey] 1051—ab; [Ford] 1946—ab
  sulphate, recurrent dermatitis not due to, 1447
  sulphate treatment of lambliasis, [Georgievskaia] 562—ab
  thiosulphate in shock, [Boissel] 561—ab
MA HUANG: See Ephedrine
MAGNIFYING lenses, binocular loupe, [Lahey] ★1975
MAIZE: See Corn
MAJIMA, Dr., 1034
MAJOR, A. J., Rector Company, 612—BI
MALARIA, chronic, postinstitutional care, 1440
  control in Ager Romanus, Italy, 280
  control, Turkey, 1359
  fever, outbreak, Michigan, 419
  hemoglobinuria, transfusion in, [Barnett] 967—ab
  in Calumet District, Indiana, 419
  in Dutch East Indies, 1848
  infantile hemiplegia due to, [de Luca] 1541—ab
  International Congress on, 606; 1438
  like, painless form of cholelithiasis, [Ehrmann] 1875—ab
  medical aspects, South Africa, 61
  new hazard from, Illinois, 539
  nostrum, Ampco Laxative Cold Tablets, 883—BI
  nostrum, Campho-Quinine, 882—BI
  nostrum, Flu-Caps, 1195—BI
  nostrum, Mendenhall's Chill and Fever Tonic, 1038
  nostrum, Williams' 101 Tonic, 1606—BI
  placenta from case of, [Wislocki] 1291—ab
  plasmodium, culture, [Aga-Han] 1877—ab
  prevention, Cape Town, 742
  research, South Africa, 60
  Therapeutic: See also Paralysis, General
  therapeutic, [Miller] ★465
  therapeutic, in dementia paralytica, [Unsworth] ★772
  therapeutic, in multiple sclerosis, [Dreyfus] 633—ab
  therapeutic, interferential theory of treatment of disease, 1113
  therapeutic, objection to in neurosyphilis, [Remlinger] 455—ab
  therapeutic vs. pyrogenic action of sulphur in olive oil, [Shilvock] 1132—ab
  therapeutic, with single strain in late syphilis, [Moore] 1995—ab
  transmission by mosquitos, semicentennial of a great discovery, 1269—E
  transmitted by other mosquitoes besides anopheles? 1283
  treatment, action of opium and narcotine in, [Chopra] 1053—ab
  treatment, celebration of discovery of quinine by Missouri Botanical Gardens, 419
  treatment, chemotherapy (quinine, etc.), [Miller] ★467; [Bass] ★988
  treatment, new remedies, [Bass] ★988
  treatment, plasmochin, [Miller] 75—ab
  treatment, quinine administration during Pasteur treatment, 223
  treatment, sodium cacodylate, [Cacciapuoti] 305—ab
  treatment, 300 years of cinchonas in medicine, 1350—E
  Wassermann reaction in, [Cherefeddin] 377—ab
MALFORMATIONS: See Abnormalities
MALIGNANCIES: See Cancer; Epithelioma; Sarcoma; Tumor, malignant; etc.
MALINGERING due to medical socialism, England, 738; 1188
MALLINCKRODT Institute of Radiology, 1511
MALNUTRITION: See Nutrition
MALPRACTICE: See also Medicolegal Abstracts at end of letter M
  A. M. A. Judicial Council report on original jurisdiction and responsibility, 45
  breaking of hypodermic needles, 423
  false diagnosis of syphilis, 1277
  negligence in fatal cyanide gas poisoning from fumigation of apartment below, 811
MALTA FEVER: See Undulant Fever
MALTED MILK: See Milk
MALTESE X-Ray Lead Glass, 865
MALTINE with Cod Liver Oil and Iron Iodide, 1505
MALTOSE-dextrin, and lactose preparation, in infant nutrition, [Gerstley] ★1233
MAMMARY GLAND: See Breast
MAN: See also Women
  early man and his progress, South Africa, 742
  "Peking man," 1358
  prehistoric, anthropologic investigation in the South African Union, 809
  thermal adjustment of man and animals to external conditions, [Martin] 1458—ab
MANGANESE, in commercial brands of milk, [Weston] ★835
  in liver, [Weston] ★836
  in oranges and tomatoes, [Weston] ★834
MANITOBA Medical Association, 943
MANOMETER, spinal, [Lyon] ★109
MANSLAUGHTER: See Murder
MANSON, PATRICK, London School of Tropical Medicine memorial to, 351
MANTOUX tuberculin reactions vs. dermatubin test, [Goldberg] 755—ab
MAORI school children, health, 58
MARASMUS, infantile, 538—E
MAREY, ETIENNE JULES, centenary, 544; 944
MARGARINE, vitamin A of butter vs., 1978—E
MARINE, merchant, prophylaxis of venereal disease among, 355
  merchant, typhoid in, 213
MARK, LEONARD PORTAL: the physician who described acromegaly in himself, 1109; 1844
MARMOLA quackery again, 359—BI
MARRIAGE, advisable if near relatives have cancer? 682
  cardiac patient who contemplates, [Reid] ★1468; (discussion) 1476
  child, in India, 137; 1188
  epilepsy a contraindication to, 1764
  intermarriage of Chinese and English and Negroes and English, 210
  of lepers, fate of offspring, 948
  of relatives, 949; 1477—ab
  physical examinations required before, Turkey, 1360
  prenuptial certificate, 546
  Sterile: See Sterility
MARSUPIALIZATION in echinococcosis of spleen, [Capecchi] 1215—ab
  in extra-uterine pregnancy at term; diagnosis and treatment, [Hébert] 1213—ab
MARTYRS: See also Heroes
  roentgen ray, E. H. Harnack, 1110
  U. S. Hygienic Laboratory worker dies of psittacosis, [Peterson & others] ★171
MARY FISHER FOUNDATION: See Foundations
MARYLAND League of Crippled Children, extension of county orthopedic clinics, 273
MARZIO, PAOLA S., fraudulent license returned, 1106
MASK that protects both physician and patient, [Mellinger] ★662
MASSAGE for constipation, [von Noorden] 1875—ab
MASSEURS and title of doctor, 540
  sentenced on charge of abortion, 1841
MASTICATION, functional synergy elevation of upper eyelid and, [Amat] 1384—ab
MASTITIS: See Breast inflammation
MASTOID, disease, with brain abscess, [O'Shea] 1052—ab
  infections and intestinal infection in infants, [Wishart] ★1084
  roentgen examination, [Granger] ★1332
MASTOIDECTOMY, 683
MASTOIDITIS: See also Medicolegal Abstracts at end of letter M
  acute, surgical indications, [Liébault] 1381—ab
MATAS, RUDOLPH, Festschrift volume honoring, 871
MATERNAL mortality, conference on, 1599
  mortality, England, 806; 1515; 1681
  mortality, heart in pregnancy, [Reid] ★1468; (discussion) 1476
  mortality in registration area, U. S., 1923
  national maternity service, England, 806; 1515; 1599
  precocious maternity, politicians nullify law for preventing, India, 1188
  prizes to women with six children, Turkey, 1984
  welfare, A. M. A. resolution on federal aid for, 44; 49
  welfare, Italian Commission to compile model diets for pregnant women, 60
  welfare, protection of mothers and new-born in factories, 947
  welfare, report on, Australia, 944
  welfare, Russia, 1192
  welfare, White House Conference Committee on, 1746—E; 1765—ME
MATTHES, MAX, death, 62
MAXILLA: See Jaw
MAXILLARY SINUS, dentigerous cyst of antrum of Highmore, [Harris] 1455—ab
  conditions, iodized oil diagnosis, [Goodyear] ★1002
  inflammation, treatment, 1447
MAYO, CHARLES HORACE, A. M. A. medal presented to, 118
MAYO, WILLIAM JAMES, A. M. A. medal presented to, 118
MAYO Clinic, [Billings] ★646
  vaginal hysterectomy for uterine prolapse, [Counseller & Stacy] ★983
MEAD'S Dry Milk, mineral values, [Weston] ★835
  5 D Cod Liver Oil with Viosterol, 200
MEALS, Test Meal: See Stomach, contents examination
MEASLES, before and after tonsillectomy, [Kaiser] ★838
  affinity to whooping cough, [Mikulowski] 1872—ab
  blood changes in, [Nyfeldt] 764—ab
  [illegible] opsonic index in, [illegible] 382—ab
  German: See Rubella
  immunity and sero-attenuation in, [Debré] 1133—ab
  immunization, 946

MEASLES—Continued
  prevention, adult blood, convalescent serum vs. immune goat serum (Tunnicliff), [Barenberg & others] ★4
  prevention, convalescent vs. immune adult serums, [Morales] 367—ab
  prevention, parental blood serum, [Bivings] 1620—ab
  relapse of, [Liebig] 1059—ab
  Rockefeller Institute to investigate, 942
  serum (convalescent) injections, anaphylactic sensitization to, 288
  treatment, amidopyrine, [Collier] 453—ab
  treatment, parental blood serum, [Bivings] 1620—ab
  treatment, transfusion, [Landon] 1531—ab
MEAT: See also Beef; Liver diet; Pork; Sausage
  diet, effects, self-experiment, [Willi] 1627—ab
  diet, is it a menace? 866—E; [Falcon-Lesses] 1445—C; [Moulton] 1762—C
  dietary facts, fads and fancies, [Stone] ★710
  mixtures, human duodenal contents reaction to, [Mettier] 449—ab
  raw vs. cooked, digestion of, [Childrey] 1374—ab
MECKEL'S DIVERTICULUM: See Intestines
MECONIUM peritonitis, [Boikan] 370—ab
MEDALS: See Prizes
MEDIASTINITIS with traumatic perforation of esophagus, [Meyersburg] ★1341
MEDIASTINUM, emphysema, etiology, [Joannides] 824—ab
  emphysema, surgery for, [Nissen] 242—ab
  tumor, lipoma, [Yater] 445—ab
MEDICAL AID BUREAU, 814—BI
MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST, 541
MEDICAL ASSOCIATION OF GEORGIA, 75
MEDICAL ASSOCIATION OF SOUTH AFRICA, 1112; 1113
MEDICAL CARE: See Medical Service
MEDICAL CENTER: See also Health Center
  for Uruguay, 943
MEDICAL COLLEGE: See also Schools, Medical
  of State of South Carolina, 55; 208
  of Virginia, health services of, 1355
MEDICAL CONGRESSES: See Congress; International Congress
MEDICAL COUNCIL, all-India, established, 423; 1924
MEDICAL EDUCATION: See Education Medical
MEDICAL ETHICS: See Ethics, Medical
MEDICAL EXAMINATION: See Physical Examination
MEDICAL EXAMINER: See Coroner
MEDICAL GUILDS, Mr. Filene's plan for, 1266—E
MEDICAL INSPECTION: See Schools
MEDICAL INTERPRETER, [Ireland] 1445—C
MEDICAL JURISPRUDENCE: See also Evidence; Malpractice; and under Medicolegal Abstracts at end of letter M
  court decision regarding liability for articles stolen from waiting rooms, 876
  court rules naturopaths cannot confer degrees, 1513
  courts and determination of blood groups, 1684
  decision regarding saving of tax on earned income, 43; 50
  libel suit of Frederick Dugdale, 1523—BI
  Marmola quackery, 359—BI
  responsibility of cities with regard to drinking water, 139; 278
  Supreme Court upholds basic science law, [illegible]
[illegible] Lectures
[illegible] American, 52
[illegible] Army, U.S.
[illegible] Patents
[illegible] Medicine, practice;
[illegible] ACTS: See also Licensure; State Boards; State Board Reports; and under Medicolegal Abstracts at end of letter M
  basic science law, Supreme Court upholds Minnesota, 1433
  Georgia, [Elrod] 75—ab
  school superintendent violates basic science law, Minnesota, 1751
  violations, California, 940
MEDICAL PROFESSION: See Medicine, practice of; Medicine, profession of; Physicians; Specialists; Surgeons
MEDICAL PROTECTIVE ASSOCIATION, 1931—BI
MEDICAL REGISTER: See British Medical Register
MEDICAL RESEARCH: See Research
MEDICAL RESEARCH COUNCIL Committee on Accessory Food Factors formulated standard for vitamin D, 874
  Gynergen "Sandoz," [Fletcher] 746—C; [Sandoz Chemical Works] 1195—C
  review of iodine in rocks, 276
MEDICAL RESERVE CORPS: See Army
MEDICAL SCHOOLS: See Schools, Medical
MEDICAL SERVICE: See also Ethics, Medical; under Medicolegal Abstracts at end of letter M
MEDICAL SERVICE—Continued
  by European physicians for European officers of Indian civil and military services, 211
  charity in private practice, Medical Society of Milwaukee County report, 943
  colonial health service, 546
  Committee on Costs of Medical Care, A. M. A. support of, 45
  Committee on Costs of Medical Care, survey of Shelby County, 599—E
  Committee on *Medical Care for Children* of White House Conference, 1746—E; 1766—ME
  cost of, [Irons] ★244; 1266—E
  extension, [Fletcher] ★1390
  for native territories, South Africa, 742
  for *railway employees, Italy, 740*
  general, England, 543; 1030; 1274; 1436
  insured granted a special sum to aid them in paying costs of *operation, 1035*
  is the medical profession discharging its full duty to *public? [Morgan]* 155—ab
  misspent wealth for health, 599—E
  problems, [Rappleye] *1207*—ab
  records of, to children, 1438
MEDICAL SHOCK: See Shock
MEDICAL SOCIETIES: See Societies, Medical
MEDICAL STUDENTS: See Students, Medical
MEDICAL SYNDICATES, France 353
MEDICAL TOURS: See Tours
MEDICINE: See also Education, Medical; Fees; Heroes; Martyrs; Medical Service; Physicians; Specialists; Surgeons; etc.
  Academy of: See Academy of Medicine
  A. M. A. Committee on Motion Picture and Talking Film in, (V. 94) 2074; 44; 1103
  Aviation: See Aviation
  Clinical: See Clinical Medicine
  clinical investigation handmaiden of, [Mayo] ★644
  contract practice, King County (Wash.) Medical Society resolution on, 275
  Cults: See Cults
  Doctorate in: See Degrees
  Faculty of: See Faculty of Medicine
  Forensic: See Medical Jurisprudence; Medicolegal; and Medicolegal Abstracts at end of letter M
  future of, and university ideals, [Fletcher] ★*1389*
  History: See also Surgery, history
  history, celebration of McDowell Day, 1595
  history, centenary of *Journal de médecine et de chirurgie practique*, 1758
  history, cholesterol and anemias, 596—E
  history, Eighth International Congress of, 805
  history, Lavoisier, 1493—ab
  history, lectures at Johns Hopkins, 1841
  history, medical colleges organized prior to 1825, ★511; 535—E
  history, medical reminiscences, Indiana, 1595
  history, medical teaching in Roman empire, 182—ab
  history, microscope 200 year old given to New York Academy, 1921
  history, prescription of Copernicus, 1114
  history, smallpox epidemic among Mandan Indians in 1837, [Pusey] ★1992
  history, 300 years of cinchonas, 1350—E
  history, trichina discovered by Joseph Leidy, [Ward] *1988*—C
  Industrial: See Industrial Medicine
  Internal: See Internal
  Latin as language of medical science, 1438
  Legal: See Medical Jurisprudence; Medicolegal; Medicolegal Abstracts at end of *letter* M
  Military: See Military
  modern, experimental method in, [Babkin] 1376—ab
  physiology relation to, 740
  Practice: See also Malpractice; Medical Practice Acts; Medical Service; Medicine, contract practice; Physicians, practising; and "Pratice of Medicine" under Medicolegal Abstracts at end of letter M
  practice by corporations, charitable organizations, industrial plants, clinics, A. M. A. Judicial Council report, 46
  practice, importance, 1310—ab
  practice (private), charity in, Medical Society of Milwaukee County report, 943
  practice, unqualified, cannot be suppressed, England, 544
  profession of, and clinics and health associations, [Blumer] 232—ab
  profession of, contributions to surgical progress, [Mayo] ★644
  profession of, discharging full duty to public? [Morgan] 155—ab
  profession of, socialization, 513; 1030
  progress, specialism result of, 775—ab
  public and, South Africa, 742
  racial degeneration produced by, danger, 1844
  science and, 1253—ab
  scientific, trend of present-day medical education, [Masson] ★765
  state, bond between doctor and patient, 1397—ab
  state, cost of medical care, 1266—E
  state, England, 543; 1030; 1274; 1436; 1841
  state, governmental philanthropy and, [Irons] ★246
  study of, warning against, Austria, 214
MEDICINE—Continued
  what is ahead of, [Ross] 693—ab
  women in, ★504; ★505; 535—E
MEDICINES: See Drugs; Nostrums; Proprietaries
MEDICO ELECTRO COMPANY, 814—BI
MEDICOLEGAL: See also Medical Jurisprudence; Medicolegal Abstracts at end of letter M
  French Congress of Legal Medicine, 808
  Italian Congress of Legal Medicine, 809
MEDIUMS, Culture: See Streptococcus epidemicus; Tubercle Bacillus; etc.
MEDULLA *OBLONGATA*: See also Tuber Cinereum
  respiratory center in, vs. narcotine, [Chopra] 1053—ab
MEENATH CORPORATION, 1355
MEGACOLON: See Colon
MEGA-ESOPHAGUS: See Esophagus
MEHARRY MEDICAL COLLEGE, 1028
  why not similar schools for caucasian as *Meharry* is for negroes, [Pusey] 746—C
MELANIDROSIS, black colostrum analogous to, [Greig] 1380—ab
MELANOMA, malignant, metastatic from placenta to liver, [Weber] 169—ab
  malignant, of tunica conjunctiva, [Heinonen] *638*—ab
  metastatic, of both eyes, [Cordes & Horner] ★655
  scalpel surgery for, [MacKee & Stone] ★1317
MELANOSIS, *pigmented mole of sole of foot*
[illegible] , [Kurtz] ★1586
[illegible] 64—ab
[illegible] Beit fellowships, 672
[illegible] lso Fetus membranes; Mucous Membranes
  in spinal fluid in tuberculous meningitis, [Ammerschläger] 1218—ab
  Jackson's, 1119
  occluding, at vaginal orifice, causes retention of menses, [Brown] *758*—*ab*
MENARCHE, delayed, endocrine malfunction in, [Lawrence] ★1149
MENDENHALL'S Chill and Fever Tonic, 1038—BI
MENINGES hemorrhage, [Berri] 1872—ab
  hemorrhage in new-born, [Fleming] 1780—ab
  hemorrhage, subarachnoid, complicating neurosyphilis, [Sands] 623—ab
  hemorrhage, subarachnoid, permanent hemianopia in, [Adie] 897—ab
  hemorrhage, subarachnoid (spontaneous), [Smith] 162—ab; [Cubitt] 1052—ab
  hemorrhage, subdural, in new born [Chase] 626—ab
  hemorrhage, symptomatic and spontaneous, [Cavalletti] 1300—ab
  spirochetosis due to infection while bathing in river, [Troisier] 81—ab; 946
  spirochetosis from digital injury, [Troisier] 1870—ab
  subarachnoid injections, 817
  syphilis, 1525
  use of intraspinal *medications, 1196*
MENINGIOMA, malignant, of spinal cord, [Woltman] ★1399
  multiple intracranial, [Hosoi] 157—ab
MENINGITIS: See also Pachymeningitis
  atypical, [Micks] 1868—ab
  benign acute idiopathic serous, [Andersen] 904—ab
[illegible] medications, 1196
[illegible] gn, [Hall] ★704
[illegible] [Hall] 705—ab
[illegible] f increased spinal 379—ab
  epidemic at boys' camp, 539
  epidemic, diagnostic value of sodium flourescein, [Bonar] 1373—ab
  epidemic, spinal block in, mechanism, [Stookey & others] ★106
  in Filipinos on ships from Orient, 537—E
  increase, in U.S., 1355
  influenzal, nitrite reaction as *diagnostic test* in, [Greenthal] 1374—ab
  latent infectious, in nervous uremias of nephritis and acute icterus, [Savy] 235—ab
  meningococcic, clinical study of 141 epidemic cases, [Smithburn & others] ★776
  meningococcus, in Detroit in 1928-1930, [Norton] 1456—ab
  meningococcus, probable aqueduct of Sylvius obstruction in, [Lyon] ★109
  muscle tonus of children with, [*von Sz.* Szász] 308—ab
  path of spread of poliomyelitis virus, 738
  pneumobacillus, secondary to otitis *media*, [Malis] 1293—ab
  pneumococcal, ethylhydrocupreine in, [Navarro] 1160—ab
  postvaccinal conditions, [Ustvedt] 81—ab
  postvaricella purulent, [Lavastine] 1917—ab
  primary, in mumps, [Weissenbach] 235—ab
  purulent, diffuse, successful *operation* in, [Mühsam] 168—ab
  purulent, due to pseudomeningococci *in child* with congenital syphilis, [Fornara] 561—ab
  reflexes in, 953
  septic, of the base of skull in cranial *osteo*myelitis, [Myers] ★406
  suppurative, eye paralysis with, [*Cornil*] 1211—ab

MENINGITIS—Continued
  suppurative, treatment, [Mann] 1302—ab
  toxic: polypeptidorrhachia, [Fiessinger] 696—ab
  traumatic aseptic: case, [Baudouin] 759—ab
  treatment during epidemic in Shanghai, [Virnich] 1302—ab
  treatment, reaction to antimeningococcus serum, [Duryea] ★1582
  treatment, serum, intrathecal use, [Smithburn & others] ★776
  tuberculous, [Engel] 762—ab
  tuberculous, membrane in spinal fluid for diagnosis of, [Ammerschläger] 1218—ab
  tuberculous, tuberculin intraspinally for, [Selter] 830—ab
  tuberculous vs. serous, Taccone test to differentiate, [Chistyakova] 1789—ab
MENINGOCOCCUS: See also Pseudomeningococcus
  [illegible] emia from, in child, 594
  [illegible] [Lyon] ★109; [Smithburn & others] ★776
  antiserum, reaction to, [Duryea] ★1582
  Meningitis: See Meningitis
  sepsis, symptomatic fulminant purpura in, [Seeber] 1704—ab
  septicemia in nursling, [Velasco Blanco] 1873—ab
MENINGO-ENCEPHALITIS, acute, with herpes zoster, [Schiff] 758—ab
  in mumps, [Weissenbach] 235—ab
MENOPAUSE, age at which it occurs, 1197
  blood pressure changes in, [von Magyary] 1786—ab
  hormonotherapy with blood of pregnant woman and with follicular fluid, [Maurizio] 828—ab
  hypertension in, [Weiss & Ellis] ★846
  ovarian products used at, 64; 1119
  postmenopausal bleeding, [TeLinde] 625—ab; [Herd] 758—ab
  postmenopausal bleeding vs. ovary tumors, [Te Linde] 1774—ab
  postmenopausal hemorrhages sign of uterus cancer, [Zweifel] 1385—ab
  sensitiveness to epinephrine at, [Myers] 624—ab
  symptoms, estrin in, [Dodds] 454—ab
  symptom-triad of postclimacteric period, [Gram] 312—ab
MENSTRUATION: See also Amenorrhea; Dysmenorrhea; Menopause
  average age of onset, 13.9 years, [Lawrence] ★1149
  axillary, in male, [Hadley] 445—ab
  congenital retention, [Brown] 758—ab
  disorders in adolescents, [Lawrence] ★1148; [Miller] ★1796
  disorders in endometriosis, [Keene & Kimbrough] ★1164
  disorders in tuberculosis, [Matthews & Bryant] ★712
  disorders, organotherapy, [Novak] ★1221
  disorders, pelvic irradiation in child-bearing woman, [Findley] ★857
  disorders, urine of pregnant women in [Zamkoff] 759—ab
  engorgement of breasts previous to, 287
  exanthem during, 817
  extra-ut[illegible] ey] ★1557
  genital [illegible]
  headach[illegible]
  light sports and, 424
  scanty, 1691
  temperature curve in tuberculous, [Jameson & others] ★13; [Weiss] 78—ab; 271—E
  use of cotton tampon in place of pad, 747
MENTAL DEFECTIVES: See also Delinquency; Idiocy
  abnormal labor as cause of mental deficiency, [Dayton] 1050—ab
  in Union of South Africa, 1926
  institution for, congenital syphilis in, [Woodall] 445—ab
  juvenile dementia paralytica in, [Menninger] ★1499
  mental development of feebleminded, [Gordon] 453—ab
  sterilization, 58; 605; 806; 1188; 1515
MENTAL DISEASE: See also Dementia; Dementia Praecox; Hospitals, psychiatric; Hospitals, state; Insanity; Psychosis; etc.
  incipient, patterns of, 188—ab
  increase, 351
  mentally ill foreigners in France, 544
  prevention, legend of, [Wechsler] ★24
  prevention, physical examinations required before marriage, Turkey, 1360
  treatment, early, 1274
  treatment, pyrogenic action of sulphur in olive oil, [Shilvock] 1132—ab
MENTAL EXERTION, blood pressure behavior in, [Fischer] 239—ab
MENTAL FACTORS, menace of, in bodily diseases, [Wholey] ★1073
MENTAL GROWTH: See Growth
MENTAL HEALTH of childhood, [Richards] ★1012
MENTAL HYGIENE, 1181—E
  American Association of Mental Hygiene Executives, organized June 10, 1930, 136
MENTAL HYGIENE—Continued
  A. M. A. Committee to Study Problems of Mental Hygiene and Hospitals, 50; 1103
  Institute, 1107; 1272
  National Committee for Mental Hygiene, 1680
  National Committee of Mental Hygiene, fellowships in extramural psychiatry, 1597
  of childhood, [Richards] ★1012
MENTAL TESTS: See Intelligence Tests
MENTHO-MUSTARD, 1606—BI
MERALGIA paresthetica, [Bergsma] 371—ab
MERBAPHEN, pyelography after intravenous *injection of uroselectan (not merbaphen),* [Freudenthal 904—ab; (correction) 1706—ab
  kidney damage from, [Sprunt] 1375—ab
MERCHANT MARINE: See Marine
MERCURIC CHLORIDE: See Mercury
MERCURIC CYANIDE: See Mercury
MERCUROCHROME, Ampules Mercurochrome H. W. & D., 1%, 20 cc., 343
  as antiseptic during labor, [Henderson] 230—ab; 607—E; [Mayes] 1208—ab; [Ford] 1946—ab
  as preventive of ophthalmia neonatorum, 1609
  as urinary antiseptics, [Jaeggy] 1214—ab
  compared with metaphen, [Birkhaug] ★917
  effect on Monilia tropicalis, [Lim] 629—ab
  enemas, possibility of poisoning from, 1691
  Mercurochrome Suppository Aces, 594
  venoclysis, [Hendon] ★1175
MERCUROUS CHLORIDE: See Mercury
MERCURY, administering, method, 886
  arc, radiations from, [Coblentz] ★411
  behavior in body, (correction) 56
  chemotherapy, [Miller] ★467
  exanthems in children, [Jenny] 1998—ab
  mercuric chloride, compared with metaphen, [Birkhaug] ★917
  mercuric chloride (corrosive), poisoning, irradiation of kidneys in, [Rybak] 169—ab
  mercuric chloride in aqueous solution retain its antiseptic or germicidal efficiency when exposed to air? 953
  mercuric chloride, use in estimating blood urea, 1366
  mercuric cyanide poisoning in children, [Aikman] ★1662
  mercuric salicylate in oil, embolism after injection, [Skolnik & Nomland] ★1742
  mercurous chloride (calomel), diet restrictions with, 1282
  rubs in dementia paralytica, [Unsworth] ★772
  use in demonstrating lymphatic system in cadavers, 747
MERRELL-SOULE Lactic Acid Milk, mineral values, [Weston] ★835
  Powdered Skim Milk, 486
  Protein Milk, mineral values, [Weston] ★835
MERSALYL in syphilitic angina pectoris, [Schlesinger] 237—ab
MESAORTITIS, syphilitic, therapy, [Fischer] 460—ab
MESENTERY, embryonic, persistence, [Hemsley] 1210—ab
MESUROL, Ampules Emulsion Mesurol, 20 per cent, 1 cc., 343
METABOLISM: See also Acid-Base Equilibrium; *Carbohydrates; Dextrose; Fat;* Protein; Water; etc.
  activity of liver, dextrose tolerance test index of, [Althausen] 1375—ab
  allergy and, [Beckman] ★1582
  anomaly, tyrosinosis, 599—E
  basal, and insensible perspiration, 1431—E
  basal, estimation in goiter, [Ireland] 646—ab
  basal, in diabetic children, [Beck] 1786—ab
  basal, low rate and anorexia, [Berkman] 1290—ab
  basal, modified by thymus and spleen extracts, [Schneider] 1303—ab
  basal, of Filipinos, [Ocampo] 1942—ab
  basal, of tumor patients, [Donati] 237—ab
  basal, reducing treatments, [Grote] 828—ab
  basal, special breakfast effect on, of patients, [Wang] 1128—ab
  basal, vs. muscular exercise, [Wang] 690—ab
  basal vs. potency of epinephrine, 1979—E
  basal, vs. sodium fluoride, [Goldemberg] 1782—ab
  clinic, Grace Deere Velie, 1352
  diseases of, Max Pam Metabolic Unit for Clinical Research in, 348
  diseases, prize for paper on, 1849
  disorders, simple dietetic system for, [Levy] 1296—ab
  during prolonged rest, 37—E
  energy and, 1402—ab
  German Society of *Diseases of Digestion* and Metabolism, 1601; 1603
  in infantile marasmus, 538—E
  in tuberculous, 743
  leukocyte count, 270—E
  of dermal pigments, 483—ab
  of tumors, [Dickens] 628—ab
  of undernourished children, 597—E
  osteomalacia and, [Gargill] 228—ab
  reactions to acidosis produced by ammonium chloride, [Morris] 694—ab
  respiratory quotient vs. epinephrine-ergotamine antagonism, [Capo] 1703—ab
  zinc in, of child, 213
METALS: See also Copper; Gold; Lead; Nickel; Tin; etc.
METALS—Continued
  disorders from electric current that develop from using, in dentistry, [Lippmann] 1385—ab
  dust and pulmonary disease, [Russell] ★1714
  grinders and polishers, pulmonary asbestosis, 1431—E
  osteosynthesis, [Frantz] 1134—ab
METAPHEN, inefficiency as skin disinfectant, [White & Hill] ★27
  intravenously, histologic changes from, [Birkhaug] ★917
  venoclysis, [Hendon] ★1175
METASTASES: See also Cancer; Sarcoma; Tumor, malignant
  experimental production, [Läwen] 1951—ab
METHANOL, 816
  as antifreeze mixture for another gas hazard, 664—E
  danger from, as skin, 1525
METHENAMINE for postoperative retention of urine, [Fiorini] 761—ab
  urinary antiseptic, [Jaeggy] 1214—ab
METHYL ALCOHOL, 664—E; 816
  enrichment method for researches on tubercle bacilli in sputum, [Velicogna] 165—ab
  possible industrial causes of optic atrophy, 955
METHYL CHLORIDE, Somnoform, [Henderson] 1445—C
METHYL PSYCHOTRINE, chemotherapy, [Miller] ★467
METHYL SALICYLATE poisoning in children, [Aikman] ★1662
METHYL VIOLET, in intestinal brucella infection, [Leavell & others] ★860
METHYLATED antigen for surgical tuberculosis, [Blankoff] 1624—ab
METHYLENE BLUE: See Methylthionine Chloride
METHYLTHIONINE CHLORIDE, for irrigating empyema cavity, 886
  eosin-methylene blue plates for cultivating brucella, [Amoss & Poston] ★482
  oxytocic action, 682
  treatment of trichomonas vaginalis, [Faulkner] 1208—ab
METROPOLITAN LIFE INSURANCE COMPANY, mortality in relation to impaired hearts, 619
MEXICAN Congress on Prevention of Blindness (first), 1435
  Typhus: See Typhus
MEYER, LOTHAR, 1277
MICE, mouse protection test on antipneumococcus serums, [Cecil & Plummer] ★1550
  psittacosis in, [Rivers & others] ★577, ★579
MICHAEL'S Cold Tablets, 1280—BI
MICHIGAN Research Clinic closed, 601
MICROBES: See Bacillus; Bacteria; Bacterium; Germicide
MICROBIOLOGY: See Bacteriology
MICROCOCCUS gazogenes (Lewkowicz), lesions produced by, [Howitt] 371—ab
MICROSCOPES, liquid petrolatum for oil immersion lens, 1609
  historic, 1921
MICTURITION: See Urination
MIDDLE AGE: See Age
MIDDLESEX College of Medicine and Surgery, refused recognition, 535—E; ★505
MIDWEST COMPANY, "American Physicians and Surgeons," 614
MIDWIVES, regulations, Italy, 609
MIGRAINE: See also Headache
  allergic, [Balyeat] 891—ab; [Rowe] 1995—ab
  periodic acetonemic vomiting in, in children, [Curschmann] 976—ab; 1763
  permanent hemianopia in, [Adie] 897—ab
  treatment, ketogenic diet, [Barborka] ★1825
MIKULICZ operation, [Gehrels] 893—ab
MILBANK FUND, rural health experiment in China, 1436
  to withdraw from Syracuse and Cattaraugus County, 351
MILITARY: See also Army; Soldiers; Veterans; War
  A. M. A. Committee on Military Affairs and National Defense, 47
  medical services, International Assembly of, 140
  Medicine, International Congress of, 281; 737
MILK: See also Butter; Buttermilk; Cheese; Cows; Infants, feeding; etc.
  acidified with lactic acid, [Wright] 1616—ab
  acidophilus, production of, commercially, 65
  Bacillus abortus in, 1107
  Bacillus coli in, bile fermentation test, 362
  biologic value, [Mattill] 756—ab
  borne epidemic of sore throat, 274; [Lane] 965—ab
  borne epidemics in rural areas, U. S., 1598
  bread and milk, digestion of, [Childrey] 1374—ab
  buffer capacities, [Holm] 1126—ab
  certified, Brucella abortus in, [Hasley] 231—ab
  commercial brands (Klim, Pet, S. M. A., Similac, etc.), mineral values of, [Weston] ★835
  Commission discontinues free distribution among the poor, St. Louis, 1921
  condensed, sugared, vitamin C in, [Bakke] 698 ab; (correction) 904—ab
  condensed, use in infant feeding, [Moro] 761—ab
  condensed, vitamins in, 1933

MILK—Continued
  consumers, iodine fed to cows harmful for, [Maurer] 635—ab
  continued fever due to Gärtner-like salmonella of type Dublin, [Smith] 162—ab
  diarrhea after drinking, 748
  diet, effect, [Bertrand] 1299—ab
  diet, effect on guinea-pig nurslings, [Bilek] 1628—ab
  diet, scurvy in adults, [Mettier & others] ★1089
  dry, Alacta, 1505
  dry, mineral values, [Weston] ★835
  evaporated, in infant feeding, [Hill] 689—ab; [Olmsted] 1699—ab
  evaporated; Pet Unsweetened Evaporated Milk, [Weston] ★835; 1505
  for invisible writing, [Langen] 1628—ab
  goat's, in sensitivity, 954
  goat's, raw, and brucelliasis, 799—E
  Human: See also Lactation
  human, iso-agglutinating power, [Ferraro] 237—ab
  human, secretion of alien proteins in, 1593—E
  in praise of calcium, 1977—E
  infected, undulant fever and contagious abortion, 673
  Injection of: See Protein therapy
  inspection, U. S., Illinois, 870
  irradiated, for nursing mothers to prevent rickets, [Scheer] 1629—ab
  irradiation of cows effect on antirachitic value of, [Steenbock] 160—ab
  Leg: See Phlegmasia alba dolens
  malted, Horlick's Malted Milk, 595
  malted, Horlick's Malted Milk Lunch Tablets (Plain and Chocolate Flavored), 865
  malted, Horlick's Malted Milk, mineral values, [Weston] ★835
  malted, Horlick's Sweet Chocolate Flavor Malted Milk, 595
  pasteurization and Brucella abortus, 955
  pasteurization, nickel dissolved from container during, [Pratt] 1456—ab
  pasteurization, place in milk distribution scheme, [MacGregor] 1458—ab
  pasteurization to control undulant fever, 799—E
  powdered, Merrell-Soule Powdered Skim Milk, 486
  powdered, mineral values, [Weston] ★835
  quart of, daily for children, 597—E; [Lane] 1126—ab
  raw, vs. Brucelliasis, 799—E
  sanitation program, results, 872
  skim, mineral values, [Weston] ★835
  Sugar: See Lactose
  supply, milk central in Milan, 878
  supply, place of pasteurization in distribution scheme, [MacGregor] 1458—ab
  supply, White House Conference on, 1766—ME
  survey, traveling laboratories used in, New York, 941
  undulant fever transmission through, 799—E; 955; 1607
  vitamin B concentrates and, 145
MILLBERRY, GUY S., *communication urging* public to save for sickness, 50
MILLER, JOSEPH L., presents engraving of William Harvey, 1355
MILT: See Spleen
MIND, state of, of an infant, 1586—ab
MINERAL OIL absorption of vitamins, 1932
MINERAL WATERS, *Fenholloway Sulphur* Springs water, 943—BI
  Saratoga Springs, study, 735
  spring baths, effect of iron in, 62
  spring resorts, principal, American and Canadian physicians, visit, 424
  springs, assembly of technical session of, Italy, 740
MINERALS: See Copper; Gold; Silver
  content of beef liver, calf liver, hog liver and oyster, [Weston] ★836
  content of drinking water, relation to consumer's health, 363
  deficiency and treatment of pulmonary tuberculosis, [Fraser] 80—ab
  metabolism in infancy, [Telfer] 757—ab
  value of oranges, [Weston] ★834
  values of commercial brands of milk, [Weston] ★835
MINERS, coal dust in sputum of, 1033
  most disastrous diseases, 1034
  phthisis, report on, in South Africa, ★1937
MINES, carbon dioxide outbursts in, 605
  cyanide rash in gold mine mill workers, [Braddock] 1377—ab
  iron ore mining and dust inhalation, [Collis] 1377—ab
MINISTERS: See Clergymen
MINNESOTA State Medical Association resolution on training reesrve officers, 1103
MISCARRIAGE: See Abortion
MISSIONARIES, American Medical, 52
  public health and, 740
MISSOURI Botanical Gardens, celebration of discovery of quinine, 419
  College of Medicine and Science, no longer recognized, ★504; 535—E
  State Medical Association proceedings, 150
MISTLETOE, treatment of essential hypertension, [Ayman] ★247
MITOGENETIC rays, Gurvitj's, [Nielsen] 312—ab
MITRAL VALVE, stenosis, angina pectoris in, [Doumer] 971—ab
MODELS for teaching lower bowel disorders, [Paulson] ★198
MOLDS, asthma due to, [Bernton] ★189
  definite sensitization to green penicillium, *[Ramirez & Eller] ★1082*
MOLECULE: See Protein
MOLES: See also Cancer; Nevus
  Cystic: See Cyst
  Hydatiform: See Uterus
  pigmented, of sole of foot, [Kurtz] ★1586
MONEY, paper, bacteria on, 1439
MONILIA, bronchomycosis, [Stokes & others] ★14; (correction) 209
  tropicalis, action of dyes and drugs on, [Lim] 629—ab
MONKEYS, psittacosis in, [Rivers & others] ★579
MONOCYTES: See Leukocytes
MONONUCLEOSIS, infectious, [Gorham & others] 72—ab; [Bradshaw] 559—ab; [Price] 1374—ab
MONSEL'S Powder, control of hemorrhage during boxing match, 955
MOORE'S Pyorrhea Remedy, 612—BI
MORAL conceptions of sex life, history, 1191
  responsibility in women, vs. reproductive cycles, 1442
MORBIDITY STATISTICS: See Vital Statistics
MORGAN, HERMAN G., 600
MORISON, JOHN M. W., 944
MORO tuberculin reaction, [Goldberg] 755—ab
MORPHINE addicts, disorders in nurslings of, [Langstein] 82—ab
  effect on digestion, [Childrey] 1374—ab
  effect on human uterus, [Bourne] 827—ab
  glycemia test in suprarenal insufficiency, [Targowla] 1212—ab
  idiosyncrasy to, contradicts pantopon, [Winans] ★199
  s] 74—ab
  175
  therapy, [Iaco-
  management of coronary thrombosis and complications, [Brown] 1049—ab
  poisoning, Drinker respirator in, [Drinker & others] ★1251
  poisoning, fatal, by hypodermic injection, 818
  poisoning, insulin plus dextrose for, [Anton] 1386—ab
  sulphate in obstetric analgesia, [Gwathmey] 1051—ab
  sulphate poisoning in children [Aikman] ★1662
  treatment of hay-fever, [De Rachewsky] 1213—ab
MORTALITY: See Cancer; Infants; Maternal Mortality; Tuberculosis; Vital Statistics; etc.
MORTAR with cellophane guard [Dold] 1951—ab
MORTENSEN, NELS G., 540
MOSENTHAL technic of urinalysis, 221
MOSQUITOES, larvae, methods of destroying, 544
  can malaria be transmitted by others besides anopheles? 1269E; 1283
  new hazard from malaria, 539
MOSSO'S Oil of Salt, 1280—BI
MOTHERS: See Maternal
MOTILITY: See also Intestines: Stomach
  disturbances, diagnosis of tumors involving spinal cord, [Woltman] ★1398
MOTION PICTURES: See also Films
  A. M. A. Committee on Motion Picture and Talking Film in Medicine, (v. 94) 2074; 44; 1103
  children excluded from, Turkey, 1683
  correlation of university research, [Holloway] ★463
  free, by New York Tuberculosis and Health Association, 207
  in cancer campaign, Ukraine, 1519
  Lewis-Gregory, of fertilized mammalian eggs, leukocytes and tissue cultures, 1509—E
  of organs in motion, 217
  of tissue cultures, 1603
  sanatorium for variety artists, 1842
  surgery in, [Stout] ★1742
MOTOR area, measurement, [Michaels] 297—ab
  nerves of eye, paralysis, [Cornil] 1211—ab
  Vehicles: See Automobiles
MOUNTAIN CEDAR and hay-fever, [Durham & Black] 293—ab
MOUNTAINS: See also Altitude, high
  climate in splenectomized persons, [Greppi] 761—ab
  efficiency of human muscles in mountain climber, 799—E
MOUTH: See also Jaws, Lips; Stomatology
  abnormalities, congenital vs. gastro-intestinal *tract disorders,* [Friedenwald] ★905
  burning of roof of, from artificial denture, 1366
  cancer of buccal mucosa, [Simmons] 1777—ab
  cancer, oral appliance for radium treatment, [Williams & Budd] ★1124
  dryness of, [Chamberlin] ★170
  mucosa diseases vs. blood diseases, [Lindemann] 1303—ab
  perlèche of adults, [Skolnik] 1533—ab
  phlegmons of floor of, [Wosmund] 635—ab
MOUTH—Continued
  to mouth breathing, [Emmert] 368—ab; [Flagg] 446—ab
MOVEMENTS: See Motility; Motor
MOVING PICTURES: See Motion Pictures
MOXON GOLD MEDAL: See Prizes
MUCIN shreds, origin of, 65
MUCINOSE in feces, 65
MUCOUS MEMBRANE: See also Mouth
  hemorrhage, [Jones] 73—ab
  tuberculosis, Gerson diet in, [Wichmann] 762—ab
MUD baths, effects, 62
  purification, 1601
  radioactive, for genital pruritus, [Iribarne] 1950—ab
MÜLLER'S SIGN, [Hall] ★703
MUMPS: See Parotitis
MURDER: See also Suicide
  manslaughter due to carelessness with cyanide gas, 811
MURIATIC ACID: See Acid, hydrochloric
MURMURS: See also Heart
  Potainian, 550
MUSCLES: See also Myositis; etc
  changes in amyelia [Dittrich] 1376—ab
  contracture, Dupuytren's of fingers, [Oehlecker] 899—ab; [Ritter] 1952—ab
  disturbances, in diagnosis of spinal cord tumors, [Woltman] ★1399
  Dystrophy: See Dystrophy
  efficiency in human, 799—E
  epiphyseal separation due to action of, [Meyer] 626—ab
  Exercise: See Exercise
  extract, effect on heart, [Bagdassarjanz] 1304—ab
  extracts in angina pectoris, [Shvartsman] 764—ab; [Schmidt] 1386—ab
  Injections in: See Injections, intramuscular
  injury, shock cause of low blood pressure produced by, 204—E
  lactic acid formation in, increased in pregnancy, [Hoffmann] 1627—ab
  narcotine effect on, [Chopra] 1053—ab
  ocular, *imbalance, 1989*
  painful syndrome in juvenile ovarian insufficiency, [Maranon] 375—ab
  pains, Sulphocol and Sulphocol Sol for, 594
  pancreas, internal secretion effect on, 676
  rectus abdominis, diastasis, surgery for, [Juckelson] 636—ab; [Abrashanow] 1305—ab
  rectus abdominis, spontaneous hematoma, [Malpas] 453—ab
  rectus suture in median laparotomy incisions, [Latzko] 763—ab
  rupture, [Pause] 379—ab
  salpingopalatinus, tic of, causing sound audible to bystander, [Stoll] ★796
  scalenus, resection with phrenicus exeresis, [Els] 1545—ab
  skeletal, potassium in, [Pilcher] 1864—ab
  spastic weakness, ramisection for, [Symonds] 758—ab
  spasticity in hypertension, [Stieglitz] ★842
  spasticity, ramisection for, [Poate] 1210—ab
  sphincter, dilating, Austin's Irrigators, 343
  striated, homoplastic grafts, [Bartoli] 1625—ab
  technic of therapeutic exercise, [Coulter & Molander] ★1342
  Tonus: See also Amyotonia; Dystonia; Myatonia
  tonus in meningitis and encephalitis in children, [von *Sz. Szász] 308—ab*
  tonus theory of dysmenorrhea, [Miller] ★1796
  transference and lengthening in shoulder dislocation, [Henderson] ★1655
  transplantation of patella to remedy loss of substances in femoral quadriceps, [Mouloguet] 1539—ab
  uremia, [Gounelle] 1538—ab
  work vs. protein metabolism, 37—E
MUSEUM, Deutsches Hygiene-Museum in Dresden, 812
  Royal College of Surgeons, 277
  Traveling Hygienic Museum, 880
MUSHROOM ileus, [Bär] 636—ab
MUSICAL talent, cerebral localization of, 879
MUSSELS quarantine, California, 731; 1510
  poisoning, research on, 1750
MUSTARD gas, detecting, prize for, 1436
  gas prevents onset of cancer, 423
  Mentho-Mustard, 1606—BI
  plasters, benefit from use of, in babies suffering from lobar pneumonia or bronchopneumonia, 67
MUTATION, microbic dissociation, 1590—E
MUTTER Lecture by Dr. F. H. Lahey, 1513
MUZII method for reducing diaphysary fractures of femur, [Benedetti-Valentini] 697—ab
MYATONIA congenita, [Gurdjian] 623—ab
MYCOSIS, aneurysm of anterior wall of abdominal aorta, [Feller] 239—ab
  bronchomycosis, [Stokes & others] ★14 (correction) 209
  dermatitis, possible, 1198
  epidermophytosis and epidermophytids of hands, [Highman] ★1158
  keratosis, palmar, 1111
  tonsillomycoses, [Castellani] 560—ab
MYELITIS: See Encephalomyelitis; Poliomyelitis; Spinal Cord

MYELOSIS: See Spinal Cord
MYOCARDITIS, chronic, [Fitz Hugh] 894—ab
  chronic, surgical risk in, [Butler & others] ★87
  etiology, 953
  rheumatismal, idiopathic, acute, [Étienne] 81—ab
  sequel of biliary infection, [Deaver] ★1641
  vs. myocardosis, [Wolffe] 361—C
MYOCARDIUM: See Heart muscle
MYOCARDOSIS, [Wolffe] 361—C
MYOMA: See also Fibromyoma
  of portio vaginalis uteri, [Turunen] 832—ab
  of urachus, [Brady] ★338
  of uterus in endometriosis, [Keene & Kimbrough] ★1164
  of uterus, surgery for, [Labhardt] 236—ab
  of uterus vs. cholelithiasis, [Plaschkes] 636—ab
MYOPIA, transient, in chronic anterior uvei- [illegible] ★1660
  [Hansen] 1630—ab; [Sylvest] 1630—ab
MYSTICISM, influence on crime in modern society, 808
MYXEDEMA during iodine administration in exopthalmic goiter, [Thompson] 368—ab
  in pernicious anemia, [Means] 74—ab
MYXOMA, infectious, [Rivers] 231—ab

MEDICOLEGAL ABSTRACTS

ABORTION: criminal; evidence, other criminal abortions, 1452
  criminal; evidence, prior curretments, 438
  criminal: evidence; statements of woman, 1202
  therapeutic; necessity for, burden of proof, 438
ACCIDENT: automobile; operator's eyesight defective, 960
ASSAULT AND BATTERY: operation, unauthorized as, 436
AUTOMOBILES: operator partially blind; not negligence to ride with, 960
BIRTH: stillbirth; civil liability for, 752
  stillbirth; trauma not proximate cause, 752
BLOOD: loss of, as a "physical injury," 1613
CHIROPRACTIC: electric treatments; right to give, 822
COMMUNICABLE DISEASES: report of; statutory time limit, construction of, 620
COMPENSATION OF PHYSICIANS: attending physician; employment of consultant, effect of, 1371
  contract; estoppel to deny, 1371
  contract; implied termination, 1371
CONTRACTS: accidents not warranted against by surgeon, 1124
  cure not warranted by surgeon, 1124
COPYRIGHT: reprints; distribution without copyright notice as abandonment of copyright, 1045
DAMAGES: fright; when an element, 1123
  failure to discharge duty as an element of, 1614
  mental suffering; when an element of, 1613
  physical suffering as an element of, 1613
DENTAL PRACTICE ACTS: licenses, revocation; employment of unlicensed persons, 1372
  licenses, revocation; provisions penal, 1372
DRUGS: aspirin a "drug"; not a "proprietary medicine," 149
  mistake by pharmacist; liability, 1696
  neoarsphenamine in treatment of "trench mouth," 150
  proprietary; aspirin, 149
DRUNKENNESS: when "under influence of intoxicating liquor," 822
ELECTRIC TREATMENTS: right of chiropractor to give, 822
ELECTRONIC TEST: evaluation of, 969
EPILEPSY: accident caused by; compensability, 1860
EVIDENCE: dying declarations; admissibility of, 620; 1372
  dying declarations: hopelessness of declarant, 620; 1372
  dying declarations; preliminary draft not authorized by declarant, 554
  electronic test; evaluation of, 959
  eyesight, loss of; injured person may testify as to, 1202
  judicial notice; scientific facts, 1372
  roentgenograms; failure to produce, 1202
  scientific facts; judicial notice of, 1372
  statements of patients as hearsay, 1202
  witness, attending physician, opinion evidence, 1371
  witness; conjectures inadmissible, 1614
  witness, expert; competency of, 959
  witness, expert; conjectures inadmissible, 1614
  witness, expert; credibility, 1046
  witness, expert; opinion invading province of jury, 1452
  witness; failure to call, 1202
  witness in criminal insanity proceeding, defendant as, 889
  witness; lay; injured person may testify as to loss of eyesight, 1202
EYE: defective vision; automobile operator; accident, 960
  detached retina; attributed to trauma, 1124
  gonorrheal ophthalmia from towel, 1452
EYE—Continued
  loss of remaining eye in industrial accident, 1938
  ophthalmia neonatorum; failure to use prophylactic, 620
FRIGHT: damages for, when payable, 1123
  not an actionable injury, 960
  proximate legal cause of, 1123
GONORRHEA: ophthalmia from infected towel, 1452
HEALTH DEPARTMENT: osteopath appointed as health officer, 1614
HEMORRHAGE: as a "physical injury," 1613
HERNIA: operation as involving cutting into abdomen, 1695
  strangulation of preexisting, 292
  trauma and preformed sac in relation to, 1695
HOSPITALS, charitable; indemnity insurance, effect on liability, 1860
  electric lights extinguished during operation; liability of lighting company, 1613
  for profit; liability for injury to special nurse, 1772
  for profit; liable for malpractice by staff physician, 1530
  nurses; liability for neglect of, 437
  nurses; special; liability for injury to, 1772
  private; right of municipality to finance, 1123
  public and private differentiated, 1123
  public; criteria of public status, 1123
  public; exclusion of practitioners, 366
  public; osteopaths' right to practice in, 366
INJURY: fright not actionable, 960
INJURIES: physical; loss of blood as, 1613
INSANITY: arrest of insane person without judicial process, 1614
  criminal; commitment though presently sane, 619
  criminal; commitment, trial by jury, 619
  criminal; evidence; defendant as compulsory witness, 889
  criminal; lunacy commission, constitutionality of procedure, 619
INSURANCE: accident; accidental means defined, 1695
  accident; gonorrheal ophthalmia from towel, 1452
  accident; hernia attributed to preformed sac, 1695
  accident; infection following tooth extraction, 1045
  accident; "operation involving cutting into abdomen," 1695
  accident; total disability defined, 890, 1696
  indemnity; effect on liability of charitable hospital, 1860
  indemnity; questioning defendant in malpractice case concerning, 438
  life; cancer and good health, 1529
  life; diabetes, undisclosed by applicant, 70
  life; "good health" defined, 1529
  life; illness between application and issue of policy, 554
  life; representation as to prior medical attendance, materiality of, 821
  life; representations as to prior health, 70; 554; 821
  life; suicide of insured, 437
JURORS: illness of, 554; 1530
MALPRACTICE: adhesive tape; burns in removing, 437
  aggravation of pre-existing injury; liability, 688
  burns in removing adhesive tape, 437
  burns; roentgen rays, 752; 960
  cancer attributed to dental plate, 959
  damages; release of person causing pre-existing injury, 688
  delivery of child; gauze left in vagina, 70
  dentist; cancer attributed to dental plate, 959
  dentist; extraction of wrong teeth, 226
  dentist; hypodermic needle broken in gum, 1046
  employer of physician; liability of, 1201
  examination; fracture of leg as result of, 1201
  examining physician; liability of, 1201
  eye; failure to use prophylactic, criminal liability, 620
  foreign bodies; failure to remove from bronchus before performing tonsillectomy, 1124
  foreign bodies; gauze left in vagina after labor, 70
  foreign bodies; needles, 1046
  foreign bodies; rubber tip from mouth gag in bronchus, 1124
  hypodermic needle; point left in gum, 1046
  hysterectomy, vesicovaginal fistula following, 1613
  indemnity insurance; questioning defendant concerning, 438
  injection, intravenous; local complications, 150
  injury, pre-existing, aggravated by treatment; release of person causing injury, 688
  legal nature of malpractice suit, 226
  limitation of action; accrual of cause of action, 70
  naturopath; standard by which judged, 1860
  nurses; liability of operating surgeon, 437
  operation; authority to operate limited, 436
  operation; fatal tonsillectomy, 1530
  operations; unauthorized, 226; 436
  osteopath; fatal tonsillectomy, 1530
  patient's duty to return for treatment, 226
  res ipsa loquitur, 150; 960; 1613
  roentgen ray burn; res ipsa loquitur, 960
MALPRACTICE—Continued
  roentgen rays; burns; subsequent treatment by another, 752
  roentgen rays; idiosyncrasy to, 752
  staff physician; liability of hospital for neglect by, 1530
  teeth, extraction of wrong, 226
  tonsillectomy, fatal, 1530
  tonsillectomy; performing with foreign body in bronchus, liability for, 1124
  trench mouth, 150
MASTOIDITIS: trauma as cause, 688
MEDICAL PRACTICE ACTS: chiropractic; electric treatment, right to give, 822
  drugs; itinerant vending as violation, 1994
  information; allegations necessary, 226
  licenses, revocation; betrayal of professional secret, 1696
  licenses, revocation, conviction for crime, 1772
  licenses, revocation; employment of unlicensed persons, 1372
  licenses, revocation; provisions penal, 1372
  revocation; gross misconduct, fraudulent representation as to diagnosis, 366
  revocation; misrepresentation as to patient's ailment, 366
NURSES: employment by physician in compensation case, 1772
  liability of physician for acts of, 437
  special; liability for injury to, 103
OPHTHALMIA NEONATORUM: failure to use prophylactic, liability, 620
OSTEOPATHY: exclusion of osteopaths from public hospitals, 366
  health officer; qualifications of osteopath to appointment, 1614
  malpractice; fatal tonsillectomy, 1530
  osteopath as a legally qualified physician, 1614
  right of osteopath to practice in public hospital, 366
PELLAGRA: total disability as caused by, 890
PHARMACY: care required of pharmacist, 1696
  injunction to enforce pharmacy act, 149
POISON: carbolic acid, suicide attributed to, 437
  carbon monoxide and workmen's compensation acts, 554
PRIVILEGED COMMUNICATIONS: common law rule, 1772
SACROILIAC STRAIN: diagnosis by roentgen rays, 1288
SMELL: traumatic destruction of sense of, 889
STILLBIRTH: See Birth
SUICIDE: life insurance in relation to, 437
TEETH: Ludwig's angina after extraction, 1045
  removal of wrong teeth by dentist, 226
TONSILLECTOMY: foreign body in bronchus, 1124
  operation by osteopath fatal, 1530
TRAUMA: detached retina attributed to, 1124
  hernia; preformed sac, 1695
  mastoiditis attributed to, 688
  sacroiliac injury; septic infection aggravating, 1288
  smell, sense of; loss attributed to, 889
VACCINATION: death following; compensable injury, 1938
WILLS: testamentary capacity and arteriosclerosis, 1371
  testamentary capacity and insanity distinguished, 1696
  testamentary capacity and old age, 1371
  testamentary capacity; criteria of, 1696
  testamentary capacity determinable by physical condition, 1371
WORDS AND PHRASES: "abdomen," 1695
  "accident," 292
  "accident arising out of and in course of employment," 554
  "accidental in nature," 70
  "accidental means," 1695
  "conviction," 1772
  "drug," 149
  "external violent and accidental means," 1045; 1452
  "good health," 1529
  "gross misconduct," 366
  "incompetent" from a testamentary standpoint, 1696
  "legally qualified physician," 1614
  "occupational disease," 70
  "physical injury," 1613
  "physician," 1614
  "profess' 1994
  "proprietary medicine," 149
  "total disability," 70; 890; 1696
  "under the influence of intoxicating liquor," 822
  "wilful betraying of a professional secret," 1696
WORKMEN'S COMPENSATION ACTS: carbon monoxide poisoning of garage employee compensable, 554
  defects of body antecedent to injury, 292
  disability, evaluation of, when due to cumulative effects of injuries, 70
  disability, total, defined, 70
  disease, occupational, 70
  epilepsy; accident caused by, 1860
  eye; detached retina not due to accident, 1121
  eye; loss of remaining eye, 1938
  hernia; strangulation of preexisting, 292
  lightning; compensability for death from, 1372
  medical fees; collection of, 292
  medical fees; jurisdiction of board, 292
  medical fees; jurisdiction of courts, 292

Medicolegal Abstracts—Continued
WORKMEN'S COMPENSATION ACTS—Continued
  medical fees; liability of employee, 292
  medical treatment; after sixty days period, 1772
  medical treatment; employer to furnish panel of physicians, 437
  medical treatment; physicians, selection of, 437
  medical treatment; physician's right to employ nurse, 1772
  medical treatment; refusal to accept, 1994
  notice of claim; injury believed trivial, 960
  notice of claim; mental and physical inability to give, 960
  nurse; employment of, 1772
  sacroiliac injury; trauma and infection, 1288
  tuberculosis not compensable injury, 70
  vaccination; death following, 1938

N

NAILS: See also Paronychia
  diseases or deformed, scalpel surgery for, [MacKee & Stone] ★1317
  in tuberculosis, 205—E
  ringworm, 1198
  symptom during intermittent claudication,, [illegible]
34
tic, 880
ction, 801—E
NARCOSIS: See also Anesthesia
  as therapy in neuropsychiatric conditions, [Bleckwenn] ★1168
NARCOTICS: See also Cocaine; Morphine; Opium; etc.
  addiction, management, 801—E
  Bureau of Narcotics, 671
  ephedrine as a habit-forming drug, 731—E
  illicit traffic, 605
  laws, A. M. A. resolution that they violate patient's fight of privacy regarding his disease, (v. 94) 2073; 46; 50
  legislation, federal, 206
  limitation of manufacture, 1757
NARCOTINE, action, in malaria, [Chopra] 1053—ab
  pharmacologic action and therapeutic uses, [Chopra] 1053—ab
NASAL, EfeDron Hart Nasal Jelly, 952—BI
  Sinus: See Nose, accessory sinuses
  spray, dermatitis due to sensitization to ephedrine used in, [Ramirez & Eller] ★1082
  spray of pituitary extracts controls bowel movement, [Sophian] 894—ab
NASHVILLE Academy of Medicine, 872; 1028
NASOPHARYNX cavity, fibrosarcoma, 878
  epidemics, [Bradley] 1780—ab
NATES, separation by adhesive plaster, [Bearse] 1619—ab
NATIONAL: For societies whose names begin with "National:" See also under Societies at end of letter S
  Academy of Sciences, 1029
  Association for Prevention of Tuberculosis, report on great decline in mortality, England, 352 (correction) 1029
  Association of Retail Druggists, greetings to A. M. A. from, 51
  Board of Medical Examiners examination acceptance of, by medical schools, [Bierring] 1376—ab
  Board of Medical Examiners, new members of, 350
  Board of Medical Examiners, recognition of certificates, ★533
  Committee for Mental Hygiene, Child Guidance Clinic, New York, 1512
  Committee for Mental Hygiene, Dr. Williams retires as director, 1680
  Committee for Mental Hygiene, fellowships in extramural psychiatry, 1597
  Conference on Nomenclature of Disease, 1752
  Congress of Medical Radiology, 607
  Defense, A. M. A. Committee on, 47
  Formulary Revision Committee, 209
  Health League scheme, 144—BI
  Institute of Health, 136; 1180—E; 1356; 1672—E; 1988—C
  Maternity Service, England, 806; 1515; 1599
  Prohibition Act, A. M. A. committee appointed to cooperate with federal departments concerning regulation under, 1676
  Prohibition Act, A. M. A. resolution that it violate the patient's right of privacy regarding his disease, (v. 94) 2073; 46; 50
  Prohibition Act and lead poisoning, [Moore] 1775—ab
  Research Council, gift for studies in physiologic chemistry of sex hormones, 418
  Safety Council, congress held by, 805
  Society for Prevention of Blindness, 1356; 1514
NATURE, control of, 1262—ab
NATUROPATHS, court rules, cannot confer degrees, 1513
"NAUHEIM" bath for essential hypertension, [Ayman] ★247
NAUSEA, car sickness, [Lebensohn] 1455—ab
  sport disease, [Jokl] 700—ab
NAVEL: See Umbilicus
NAVICULAR BONE, fracture, [Harild] 832—ab
  tarsal, Kohler's disease, [Phemister & others] ★995
NAVY: See also Marine; Seamen
  English, physical standard of, 352
NEBRASKA State Medical Association, student loan fund created by, 135
NECK: See also Throat
  auscultation of arteries, [Landau] 1211—ab
  blood cysts, true, [Calzolari] 899—ab
  diagnosis of laryngeal disease, [Jackson] ★1322
  emphysema complicating tonsillectomy, [von Hofe] ★934
  infection after tonsillectomy, [Shapiro] 370—ab
  phlegmon with periurethral urinary phlegmon after operation, [Stutzin] 1545—ab
  sign in meningitis, [Hall] ★704
  stab wound, followed by spinal fluid leakage, [Shawan] ★1671
NECKLACE, Galvano, goiter nostrum, 882—BI
NECROPSIES, blood chemistry in renal disease, [Polayes] 1127—ab
  condition at, in carbon monoxide poisoning in garage, 1524
  delayed, hydrocyanic acid in viscera at, 544
  findings in fatal morphine poisoning by hypodermic injection, 816
  observations in psittacosis, [Peterson & others] ★171
  performance by general practitioners on command of coroner, England, 874
  professor bequeaths his body to hospital, 1110
  report of jake paralysis, [Jeter] ★112
NECROSIS: See under Abdomen; Bone; Fat; Pancreas
NEEDLES, puncture, biopsy by, [Martin] 961—ab
NEGROES, Addison's disease in, [Sala] 1374—ab
  blood groups in, 1927
  color problem in England, 210
  facial tuberculosis in Nigeria, [Smith] 163—ab
  hernia in Africans, [Connell] 968—ab
  hygiene among black races, 741
  malignant tumors in Congo natives, 1033
  medical education of Bantu native, 1112
  medical schools for Madagascar natives, 739
  medical schools, why not similar schools for the caucasian as Meharry, [Pusey] 746—C
  medical service for native territories, South Africa, 742
  Meharry Medical College, 1028
  meningococcic meningitis in, [Smithburn & others] ★776
  multiple cardiac gummas in new-born, [Williams] 1774—ab
  pregnancy and labor complicated by granuloma inguinale, [Wilson] ★1093
  scarlet fever in, diagnosis, 1689
  ultraviolet dosage for infants with tetany, [Bakwin & Bakwin] ★398
  viosterol, prophylactic and therapeutic dosage for, [Hess & others] ★316
NELSON, JOHN W., Jamestown, N.Y., 1688—BI
NEOARSPHENAMINE, dermatitis after, 1196
  dissolved in solution of sodium thiosulphate? 1119
  effect on Monilia tropicalis, [Lim] 629—ab
  effect on trypanosomes and Spirochaeta pallida, [Miller] ★467
  injections, acute yellow atrophy associated with, [Bortin] 1295—ab
  injections in acute myeloblastic chloroma, [Rosenblum] 977—ab
  purpura hemorrhagica after, [Lindsay] 966—ab
  treatment of bronchopulmonary spirochetosis with tuberculosis, 747
  treatment of carbuncle, [Palacios] 1998—ab
  treatment of lambliasis, [Georgiebskaia] 562—ab
  treatment of malaria, [Bass] ★989
  treatment, unusual reaction following, [Black] 160—ab
  vs. bismarsen in syphilis, [Shivers] 1205—ab
NEO-CINCHOPHEN, liver atrophy from, [Rabinowitz] ★1229
NEPHRECTOMY: See Kidney excision
NEPHRITIS: See also Pyelonephritis
  azotemic, in typhoid, [Lemierre] 1997—ab
  chronic, alkalis for, [Osman] 1947—ab
  chronic, and facial paralysis, [Vinard] 1055—ab
  chronic, differentiating hyperglycemia of diabetes from that of, 1118
  classification, [Simonds] ★930
  complicating meningococcic meningitis, [Smithburn & others] ★776
  diet, acid-ash elements, [Stone] ★711
  dietetic treatment, [Eimer] 830—ab
  edema, calcium lactate or chloride in, 1447
  glomerular, in children, [Guthrie] 1053—ab
  glomerular, renal structural changes, [Narr] 156—ab
  heart disease and, [Butler & others] ★89
  in children, [Guthrie] 1053—ab
  in tuberculous and lipoid nephrosis, [Labbé] 696—ab
  latent infectious meningitis in nervous uremias of, [Savy] 235—ab
  nostrum, Fulton's Compound, 745—BI
NEPHRITIS—Continued
  occult, and pregnancy toxemias, [Browne] 1868—ab
  Rockefeller Institute to investigate, 942
  Syphilitic: See Kidney
  treatment, decapsulation, [Campbell] 1131—ab
  tre[illegible] right's disease, [illegible] -ab
  tul
  use of term "nephritis" or "nephrosis," 221
NEPHROPEXY: See Kidney, floating
NEPHROPTOSIS: See Kidneys
NEPHROSIS: See also Kidney disease
  use of term nephritis or nephrosis, 221
NEPIOLOGY, Congress of, 947
NERVES: See also Anesthesia; Neuralgia; Neuritis; Paralysis; etc.
  abducens, periodic paralysis, [Stern] 701—ab
  anterior ethmoid, injection for hay-fever, [Byrd] 1050—ab
  block for fractures and dislocations, [Highsmith] 1129—ab
  cell injury in human electrocution, [Langworthy] ★107
  cells, action of anesthetics, 1977—E
  changes in amyelia, [Dittrich] 1376—ab
  extrinsic, innervation, lungs in status asthmaticus, [Stern] 559—ab
  fibers, transmitting sensation of taste, [Lewis] 824—ab
  fifth lumbar, herpes zoster in, [Waterhouse] 1997—ab
  hypogastric, superior, resection in genital dysfunctioning, [Revoltella] 304—ab
  injuries, in abdominal scars, [Bancroft] 824—ab
  Innervation in reestablishing collateral circulation, [Leriche] 972—ab
  intercostal neurectomy for phthisis, [Alexander] 1862—ab
  intercostal, twelfth, post-traumatic state of, [Huggins & Bucy] ★652
  optic, atrophy, arsenic in, [Guy] ★981
  optic atrophy, possible industrial causes, 955
  optic, choked disk in brain abscess, ophthalmolo[illegible] ı] ★568
  optic [illegible] 1460—ab
  optic, [illegible]
  peripheral, alcohol injection to relieve pain in vascular disease, [Smithwick] 1208—ab
  peripheral, lesions, in Jake paralysis, [Jeter] ★112
  phrenic, artificial paralysis of diaphragm in pulmonary tuberculosis, [Sachs] 1216—ab
  phrenic avulsion in tuberculosis, [Graf] 1216—ab
  phrenic, temporary interruption in tuberculosis, [Hughes] 826—ab
  Phrenicectomy: See also Tuberculosis, Pulmonary
  phrenicectomy, [Yates] 1863—ab
  phrenicectomy, changes in respiratory mechanism after, [Werner] ★1162
  phrenicectomy combined with pneumothorax, [Udaondo] 1382—ab
  phrenicectomy effect on sputum, [O'Brien] ★652
  phrenicectomy: mechanism of action: results, [Dumarest] 1213—ab
  phrenicus exeresis with resection of scalenus muscles, [Els] 1545—ab
  plexuses vs. lymph nodes of abdomen, [Kiss] 1293—ab
  presacral, resection for cord bladder, [Learmonth] 1866—ab
  recurrent, therapeutic paralysis for larynx tuberculosis, [Schugt] 169—ab
  regeneration of, 221
  roots, alcohol injected into, for thromboangiitis obliterans, [Stern] 1775—ab
  Sciatic: See also Sciatica
  sciatic, freezing for juvenile gangrene, [Läwen] 1462—ab
  sectioned, peripheral end in painful syndromes, [Waller] 760—ab
  Surgery: See Neurotomy
  vagal, and bundle-branch block, [Wolff] 1125—ab
  vagotomy, protective devices for heart, 867—E
  vagotonic hormone from pancreas, [Santenoise] 1459—ab
  vagotropic action epinephrine injected intravenously, [Petzetakis] 828—ab
NERVINE, bromide intoxication from, [Wagner & Bunbury] ★1725
NERVOUS BREAKDOWNS: See Neurasthenia
NERVOUS SYSTEM: See also Neurology
  central, abnormalities from electrical injuries, [Langworthy] 231—ab
  central, Babinski sign, [Hall] ★701
  central, cancer, metastatic from lungs, [Davison] 1940—ab
  central, diffusion of virus through, [Cattaneo] 975—ab
  central, postvaccinal conditions, [Ustvedt] 84—ab
  central, reflex disturbances due to violent disorders, 1604
  complications of chickenpox, [Borra] 305—ab
  disease, abiotrophic, [Roholm] 461—ab
  disease, liver feedings in, [Wilkinson] 451—ab
  disease, symptomatic blood changes, [Schroder] 1546—ab
  effect on "taking" of homoplastic grafts of striated muscle, [Bartoli] 1625—ab

- NERVOUS SYSTEM—Continued
  - effects of obstetric injuries on, [Byers] 1295—ab
  - histology, [Ludlum] 296—ab
  - nervous breakdowns, 1171—ab
  - regeneration, 1603
  - rôle in acute and chronic inflammation, [Speransky] 970—ab
  - Syphilis: See Neurosyphilis
- NERVOUS SYSTEM, SYMPATHETIC, annulus of Vieussens, 1283
  - dependence of irregularities of heart under chloroform on, [Brow & others] ★715
  - epinephrine injected intravenously effect on, [Petzetakis] 828—ab
  - involvement in tabes, [Riser] 455—ab
  - medical problems with surgical aspects, [Mayo] ★645
  - rôle in reestablishing collateral circulation, [Leriche] 972—ab
  - stimulation vs. leukocyte count, 807
  - Surgery: See also Ganglionectomy, Sympathetic; Ramisection
  - surgery, [Flothow] 1775—ab
- NETHERLANDS Assembly of Control Physicians, 281
- NEURALGIA, nostrum, Nip-a-Co Capsules, 1111—BI
  - nostrum, Phenyo-Caffein, 952—BI
  - nostrum, Sniff, 431—BI
  - post-traumatic state of twelfth intercostal nerve simulating ureteral pain, [Huggins & Bucy] ★652
  - segmental, in appendicitis, [Czyhlarz] 1387—ab
  - trigeminal, etiology, pyretotherapy, [Ball] 894—ab
  - trigeminal, gasserian ganglion examination in surgical treatment, [van Nouhuijs] 381—ab
  - trigeminal retrogasserian neurotomy in, [Chiasserini] 899—ab
- NEURASTHENIA, hypothyroidism, [Warfield] ★1076
  - nervous breakdowns, 1171—ab
- NEURITIS, diabetic, with paralysis, [Root] 299—ab
  - in drivers of autos, 1275
  - Korsakoff's syndrome, [Hall] ★705
  - peripheral, polyneuritis from Jamaica ginger, [Jeter] ★112; [Merritt] 692—ab; 1029; 1672—E; [Smith] 1700—ab
  - polyneuritis gallinarum, Eijkman research on, 1673—E
  - possible from overdosage of acetylsalicylic acid, 614
  - traumatic polyneuritis after lightning stroke, [Urechia] 81—ab
- NEUROBLASTOMA of liver, metastatic, fetal dystocia due to, [Hagstrom] 78—ab
- NEUROFIBROMA, scalpel surgery for, [MacKee & Stone] ★1317
- NEUROGLIA, 424
- NEUROLOGISTS, eleventh International Congress of, 424
  - German, society of, 1603
- NEUROLOGY signs and their discoverers, [Hall] ★703
- NEUROMA, scalpel surgery for, [MacKee & Stone] ★1317
- NEUROMYELITIS, optic, [Marinesco] 1460—ab
- NEUROPSYCHOSIS; See Psychiatry; Psychoneurosis; Psychosis
- NEUROSIS: See also Angioneurosis
  - after lightning stroke, [Urechia] 81—ab
  - arising out of claims for workmen's compensation, 1759
  - cardiac, [Herrick] ★1631
  - conditioned reflexes and pharmacology 415—E
  - fear is a mental deformity, 1472—ab
  - gastro-intestinal, [Friedenwald] ★908
  - ocular, [Derby] ★913
  - traumatic, Oppenheim sign, [Hall] ★706
- NEUROSYPHILIS, asymptomatic, prognosis, [Moore & Hopkins] ★1637
  - complication, subarachnoid hemorrhage, [Sands] 623—ab
  - familial, [Sézary] 1134—ab; [Dennie] ★1571
  - in children of father with dementia paralytica, [Dennie] ★1572
  - meningovascular syphilis, 1525
  - morbidity, incubation period and mortality, [Guy] ★797
  - treatment, arsenicals contraindicated, [Unsworth] ★772
  - treatment, inoculations with Spirochaeta hispanicum, [Remlinger] 455—ab
  - treatment with single strain of malaria, [Moore] 1995—ab
- NEUROTOMY, retrogasserian in trigeminal neuralgia, [Chiasserini] 899—ab
- NEUROTROPISM, is arsenic neurotropic? [Guy] ★982
  - viruses, filtrable elements, 673
- NEUROVACCINE, cultivation, [Li] 1535—ab
- NEUTRAL RED in diagnosis of gastric achylia, [Streicher] ★326
- NEUTRALIZATION test in poliomyelitis, [Aycock] 298—ab
- NEUTROPHIL count, [Farley] 1289—ab
- NEVUS: See also Angioma
  - naevo-xantho endothelioma, [Jacoby] 450—ab
  - pigmented, of sole of foot, [Kurtz] ★1586
  - scalpel surgery for various types, [MacKee & Stone] ★1317
- NEW ENGLAND Surgical Society, 1353
- NEW YORK Academy of Medicine: See also Harvey Society Lectures
  - Academy of Medicine, Donor Bureau, 1842
  - Academy of Medicine, gifts to, 540
  - Academy of Medicine, Graduate Fortnight, 349; 1106; 1272
  - Academy of Medicine, guides for graduate study, 1435
  - Academy of Medicine, historic microscope given to, 1921
  - Academy of Medicine, L. L. Mackall consultant in bibliography, 420
  - commissioner of health testimonial for a tooth paste, 1267—E; 1268—E
  - Medical Society of County of, endorses compensation agreement, 1354
  - Medical Society of State of, conference outlines plans, 1186
  - Noise Abatement Commission, report, 274
  - Skin and Cancer Hospital given a gram of radium, 1512
  - Tuberculosis and Health Association, free outdoor movies and disease prevention by, 207
  - University, pediatric department reorganized, 1752
- NEWBERRY (Skimmed) Milk, mineral values, [Weston] ★835
- NEW-BORN: See Infants, New-Born
- NEWMAN, HENRY WARE, 1596
- NEWSPAPERS, American Newspaper Publishers Association, [Stone] ★711
  - columnist, Dr. William Brady, 346—E
  - dermatitis from rotogravure section, [Ramirez & Eller] ★1082
  - food fads and fancies and, [Stone] ★713
  - Los Angeles *Times* fosters propaganda of quacks, [Stone] ★714
  - Lowell (Mass.) *Sun*, Frederick Dugdale loses libel suit against, 1523—BI
  - Marmola quackery and, 359—BI
- NICKEL dissolved from container during pasteurization, [Pratt] 1436—ab
- NICOTINE: See also Cigarets; Tobacco
  - effect on cardiac irregularities, [Brow & others] ★716
  - nicotinism: pathologic changes in vascular system, [Kosdoba] 240—ab
- NIEMANN'S DISEASE, 1102—E
- NIP-A-CO CAPSULES, 1444—BI
- NIPPLE, bleeding, does it justify removal of breast? [Mintz] 637—ab
- NITRATES: See also Silver nitrate
  - sodium, effects, powder manufacture, 1282
- NITRITE reaction in influenzal meningitis, [Greenthal] 1371—ab
- NITROGEN, in Blood: See Blood
  - in urine and feces vs. feeding, [Simonini] 1057—ab
  - metabolism of children, [Parsons] 367—ab
  - renal lesions with retention of, caused by viosterol, [Spies] 690—ab
  - retention vs. albuminuria in nephrosis, [Cowie] 1373—ab
  - substance in liver extract which is effective, [Minot & Cohn] 73—ab
- NITROSCLERAN for essential hypertension, [Ayman] ★247
- NITROUS OXIDE Anesthesia: See Anesthesia
- NOBEL PRIZE, Dr. Landsteiner wins, 1435; 1749—E
- NOCHT, Dr. BERNHARD, retires, 611
- NODES: See Lymphatic System
- NODOSIS rheumatica, [Strauss] 900—ab
- NODULES, nonmalignant, of breast the result of prolapse, [Farrar] ★1329
  - subcutaneous in rheumatoid arthritis, [Dawson & Boots] ★1894
- NOISE Abatement Commission, New York, report, 274
  - evil, French Academy of Medicine report on, 606
  - in Berlin, 949
  - tic of salpingopalatinus muscle causing sound audible to bystander, [Stoll] ★796
- von NOORDEN, CARL, photograph in Fleischmann's yeast advertisement, [Stone] ★714
- NORFOLK County Medical Society, continuation courses for practitioners, 1273
- NORGOL TABLETS, 814—BI
- NORTHWESTERN UNIVERSITY Medical School, Founder's Day, 1104
  - plans another hospital, 539
  - Scientific Crime Detection Laboratory, 668
- NOSE: See also Nasal Spray
  - accessory sinuses, acute suppuration, [Uffenorde] 377—ab
  - accessory sinuses conditions, iodized oil in diagnosis, [Goodyear] ★1002
  - disappearance of circulating ragweed pollen after absorption from, [Cohen] 293—ab; 1456—ab
  - disinfection, daily advocated, 1600
  - Ephedrine Nasal Jelly-Maltbie, 200
  - hemorrhage before and after tonsillectomy, [Kaiser] ★838
  - hemorrhage, familial, as sign of pseudohemophilia, [Curschmann] 167—ab
  - hemorrhage in rheumatism, [Levine] 1865—ab
  - large bulbous red, will plastic surgery modify or improve? 883
  - marked post-nasal discharge in tonsillectomized and non-tonsillectomized children, [Kaiser] ★839
  - mucosa; Asuero arrested, 547
- NOSE—Continued
  - new mask that protects both physician and patient, [Mellinger] ★662
  - paranasal sinuses, roentgen examination, [Granger] ★1332
- NOSEBLEED: See Nose hemorrhage
- NOS-I-ONS, 1606—BI
- NOSTRUMS: See also Quackery; under names of specific nostrums; under names of diseases
  - bromide nerve tonic, [Harris & Hauser] ★91; [Wiedman] 1281—C; [Goldenberg] 1689—C; [Wagner & Bunbury] ★1725
  - liver atrophy from cinchophen nostrum, 345—E; [Rabinowitz] ★1228
  - "Nostrums and Quackery" placed in public libraries, 206
- NOTIFIABLE DISEASES: See Diseases, reportable
- NOTT, JOSIAH CLARK, portrait to be unveiled, 1026
- NOUNS, plurals of, ending in "itis" 287
  - plural of Greek and Latin nouns, 1933
- NOVASUROL: See Merbaphen
- NOVATOPHAN, liver atrophy from, [Rabinowitz] ★1229
- NOZELINE, 1280—BI
- NUCLEAR extractives for secondary anemia, [Giffin & Watkins] ★591
- NUCLEUS: See Cell
- NUE-OVO, 680—BI
- NUMOSS, 952—BI
- NUREMEDY, 680—BI
- NURSERY, Curtice Brothers Certified Nursery Foods, 486
- NURSES: See also Nursing; Medicolegal Abstracts at end of letter M
  - B C G vaccination, [Heimbeck] 764—ab
  - children's, training, Germany, 812
  - hospital care and personnel, 609
  - qualifications physicians answer questionnaire on, 1029
  - *reduction in rates for, Chicago, 1920*
  - student, diphtheria vaccination, [Bie] 978—ab
  - student, tuberculosis in [Meulengracht] 764—ab
  - supply, Committee on Grading of Nursing Schools report, 1187
- NURSING for families of moderate means, 1184
  - hourly service in Columbus, 1812
- NUTRITION: See also Diet; Feeding; Food; etc.
  - deficient produces pernicious anemia, [Wills] 453—ab
  - fast days disapproved, 677
  - in tuberculous persons, 743
  - insufficient, to heart muscle, 731—E
  - *Lavoisier, 1493—ab*
  - malnutrition, [Eby] 1130—ab
  - malnutrition and serum proteins, [Bruckman] 449—ab
  - malnutrition in childhood, [Gay] 75—ab
  - *malnutritional or cachectic edema,* [Bruckman] 449—ab
  - national institution to solve problems of, Argentina, 546
  - newer conception, [Weston] ★834
  - of children on mixed and on vegetable diet, [Lane] 1126—ab
  - of infant, studies, [Gerstley] ★1233
  - of preschool child, protein requirement, 1351—E
  - *of sick children, [Peterman] 1126—ab*
  - Paul O. Sampson; National Health League scheme, 144—BI
  - practical, Labrador—a lesson in, 665—E
  - underfed infant, [Lonsway] 151—ab
  - undernourished children, metabolism of, 597—E
  - undernourishment, campaign against, North Carolina, 208
  - *undernutrition, insulin for,* [Jacobsen] 1878—ab
  - value of cereal breakfast foods, [Clough] 755—ab; 1101—E
- NUTS, condemnation of walnuts, California, 1026
- NYAL Cold Capsules, 1281—BI
- NYSTAGMUS, spontaneous, in congenital syphilis, [Asherson] 1780—ab

O

- OAKITE, possible industrial causes of optic atrophy, 955
- OATMEAL, decalcifying effect, [Weston] ★834
  - in ideal cereal mixture, [Tisdall] 1773—ab
  - in nutrition, 1101—E
  - proteins, biologic value, [Mattill] 756—ab
- OBESITY: See also Body weight
  - [Clasen] 154—ab
  - critical consideration, 36—E
  - diabetes and, 202—E
  - *eat and grow fat, 1182—E; 1507—E*
  - glycosuria and, 1282
  - hypercrinic forms, [Facili] 1459—ab
  - nostrum, Basy Bread, 1194—BI
  - nostrum, Hollie's Reducing Crackers, 882—BI
  - nostrum, Marmola, 359—BI
  - nostrum, Slends Chewing Gum, Dr. Rusby's testimony, ★723; 730—E
  - sterility and, [Hill] 758—ab
  - treatment, diet, [Strang] 77—ab

OBESITY—Continued
  treatment, elastic reducing *belts satisfactory* and reliable? 883
  treatment, reducing, [Grote] 828—ab
  vs. increased sugar consumption, [Stone] ★711
  [illegible] *therapy*, 1690
[illegible] Cesarean Section; [illegible] Obstetricians, Gyne- [illegible] Surgeons, 805
  American Board of Obstetrics and Gynecology, 122; 1355
  blood sedimentation test in, value, [Dodds] 758—ab
  cardiovascular disturbances in, [Reid] ★1468; [Herrmann & King] ★1472
  cases at Minneapolis *general hospital*, [Adair] 1699—ab
  Congress of Gynecology and Obstetrics, Belgium, 1602
  lectures on, 1751
  Paralysis: See Paralysis
  present-day tendencies in, 1759
  rural, [Peck] 1996—ab
  specimens, Lockyer collection, 1436; 1516
  training in hospitals for interns, ★513; ★515; 535—E
OCAMPO, AUGUSTIN, *jailed*, 1920
OCCLUDER, vein, simple, [Smith] 302—ab
OCCUPATIONAL THERAPY for disabled, [Mock] ★33
  for diabetics, Germany, 1760
  technic of therapeutic exercise, [Coulter & Molander] ★1342
ODDI'S SPHINCTER: See Sphincter
ODOR: See Deodorant
OFFICERS: See Army
OHIO State University commencement address, successful physician, [Upham] ★551
  Dr. Doan arrives for new research department, 274
OIL: See also Cod Liver Oil; Mineral Oil; Olive Oil
  Brominized Oil: See Brominized Oil
  carcinogenic, their fluorescent spectrums, [Kennaway] 373—ab
  Donnell's Indian Vegetable Oil, 745—BI
  embolism after injecting mercuric salicylate in, [*Skolnik & Nomland*] ★1742
  immersion lens, liquid petrolatum for, 1609
  Iodized: See Iodized Oil
  Mosso's Oil of Salt, 1280—BI
  of bergamot dermatitis, [Lane & Strauss] ★717
  [illegible] containing procaine [illegible]nn] 1544—ab
  [illegible]rts] 454—ab
  volatile, expectorants: action on ciliated epithelium, [Kochmann] 238—ab
OINTMENT, Casey Wood's, for interstitial keratitis, 1041
  irradiated, in surgical conditions, [Ried] 1218—ab
  Löwenstein's: See Diphtheria Immunization
  Pyridium Ointment 10 per cent, 35
  Scarlet Red Biebrich 8 per cent, 1745
OLD AGE: See also Longevity
  achlorhydria and anemia in, [Davies] 1781—ab
  age of patients operated on for senile cataract, [Gradle] ★774
  auscultation of arteries of neck and new symptom of syphilitic aortitis, [Landau] 1211—ab
  bismuth subnitrate in treatment of arterial hypertension, [Stieglitz] ★842
  causes of increasing *mortality from cancer*, 807
  diseases of, and maritime medicine, 1928
  lung abscesses in, [Spector] ★789
  problems in diagnosis and treatment of diseases in, [Guyot] 154—ab
  sclerotic changes in aortic valve, [Drake] 1206—ab
  sinus arrhythmia in, [Faulkner] 444—ab
  variations in blood pressure, 666—E
OLD MISSION Laxative Cold Tablets, 1444—BI
OLIVE OIL, *Pompeian Olive Oil*, 35
  in diet of acetonemic children, [de los Terreros] 1782—ab
  pyrogenic action of sulphur in, [Shilvock] 1132—ab
OLIVER, JOHN RATHBONE, *roentgen ray* martyr, 1185
OLLIER centenary, 876
OMARTHRITIS, [Kahlmeter] 1790—ab
OMENTUM, tumor, [Joachimovits] 1464—ab
101 TONIC, Williams', 1606—BI
ONIONS, carminative action, 1284
ONOLIN, *new* names for old products, 1933
OPERATING ROOM: See Surgery
OPERATIONS: See Surgery and under names of specific organs, regions and diseases
OPHTHALMIA Neonatorum: See also Medicolegal Abstracts at end of letter M
  neonatorum, prophylaxis of, 1609
OPHTHALMODYNAMOMETRY to determine intracranial pressure, [Winther] 1706—ab
OPHTHALMOLOGY, *American Academy of*, 1514
  American Board for Ophthalmic Examination, 1029
  Congress of, 59; 353
  Congress of Otoneuro-Ophthalmologic Societies, 1439
  diplomas *for* specialists in, 140
OPHTHALMOLOGY—Continued
  [illegible], 878
  [illegible] ★568
OPHTHALMOPLEGIA, unilateral, in chickenpox, [Borra] 305—ab
OPIUM: *See also* Morphine
  action in diabetes, [Chopra] 1053—ab
  action in malaria, [Chopra] 1053—ab
  addiction, management, 801—E
  illicit traffic, 605
OPPENHEIM SIGN, [Hall] ★706; 953
OPSONIC index in children convalescent from measles and chickenpox, [Piana] 1540—ab
OPTICAL GLASS: See Glasses; Lens
OPTOCHIN: See Ethyl hydrocupreine
ORAL CAVITY: See Mouth
ORANGE juice, digestion, [Childrey] 1374—ab
  juice, for invisible writing, [Langen] 1628—ab
  juice, vitamin C in, 433
  juice, Whitefield Genuine Orange Juice, 1835; 1933
  mineral values, [Weston] ★834
ORBIT, cellulitis in children, [Smith] 628—ab
  cyst and tumor, [Cary] ★1811
ORCHITIS after vaccination in child, [Schiavone] 1542—ab
ORGANOTHERAPY for menstrual disorders, [Novak] ★1221
ORGANS, films of, in motion, 217
  functioning, effect of trauma on, [Marcus] 700—ab
  lung as a contractile organ, [Luisada] 761—ab
ORIENTAL SORE: See Leishmaniasis
ORPHANAGES, combating diphtheria epidemics in, [Jensen] 978—ab
  glandular fever epidemic in, [Scheer] 1787—ab
  measles prophylaxis in, [Barenberg & others] ★4
ORPHANS, war, sanitary aid for, Italy, 809
ORR, HIRAM W., honored, 1921
ORTHOPEDIC aspects of chronic rheumatism or *arthritis, [Osgood] ★992*
  Brown Orthopedic Research Fellowship, 420
  clinics, county, extension, Maryland, 273
  French Congress of, 1846
  Heidelberg Orthopedic Congress, 1362
  International Congress of Orthopedic Surgery, 1925
  lecture established (Sir Robert Jones), 804
  reduction of diaphysary femur fractures, [Benedetti-Valentini] 697—ab
  surgeon, new problems of, [Francisco] ★1467
ORTHOTOLUIDINE, poisoning due to shoe dyes, 739
OS Calcis: See Calcaneum
  Lunatum: See Semilunar Bone
OSAKA MEDICAL COLLEGE, 426
OSIRIS Prize: See Prizes
OSLER, WILLIAM, memory honored, 1754
OSLER Clinic, Johns Hopkins unit nears completion, 871
OSSIFICATION: See Calcification
OSTEARTHRITIS, differential diagnosis, [Dawson] 1048—ab
  hypertrophic, of spine, [Cottrell] 1944—ab
  tuberculous, treatment, [Bufnoir] 1135—ab
OSTEITIS deformans (Paget), generalized, [Genner] 1878—ab
  fibrosa, calcium-phosphorus *deficient foods*, cause, 1601
  fibrosa, parathyroid extract induces, [Jaffe] 1628—ab
  fibrosa polycystica and diabetes insipidus, [*Sophian*] ★483
  fibrosa (Recklinghausen's), [Ferrero] 1949—ab
OSTEOCHONDRITIS deformans juvenilis, etiology, [Cordes] 699—ab
  deformans juvenilis, of epiphyses and short bones, [Phemister & others] ★995
  dissecans cubiti, [Christensen] 1388—ab
OSTEOCHONDROMA of thoracic wall associated with trauma, [Morton] 295—ab
OSTEOGENESIS: See Bone formation
OSTEOMALACIA, metabolism *and treatment*, [Gargill] 228—ab
OSTEOMYELITIS, chronic, postoperative healing process in, [Kreuscher] 825—ab
  in adolescents, [Biancheri] 760—ab
  of *patella*, 1119
  of skull, [Myers] ★406; [Woodward] ★927
  relation to traumatism, 808
OSTEOPATHS: See also Medicolegal Abstracts at end of letter M
  seek separate examination boards, Illinois, 418
  [illegible] philitic, mistaken for *Lupen] 1214—ab*
  [illegible] 635—ab
  [illegible] [Leriche] 375—ab
OSTEOPSATHYROSIS, idiopathic, [Harpoth] 312—ab
OSTEOSYNTHESIS, metallic, [Frantz] 1134—ab
OTITIS MEDIA, pneumobacillus meningitis secondary to, [Malls] 1293—ab
  purulent, before and after tonsillectomy, [Kaiser] ★838; ★839
  relation to infection of intestinal tract in infants, [Wishart] ★1084
  suppurative, our eighteenth century method of treating, [Pratt] ★1258
  treatment, Sorensen Therapeutic Heater No. 921, 413
OTOLARYNGOLOGY, American Academy of, 275; 1514
OTOLOGY, Congress of Italian Society of, 1029
OTONEURO-OPHTHALMOLOGIC Society, 878; 1439
OTORHINOLARYNGOLOGY, Roumanian Congress of, 737
  French Congress of, 1924
OUTPATIENT DEPARTMENT, Max Epstein gift to University of Chicago for establishment of, 418
  University of California Hospital, 539
OVARY: See also Corpus Luteum
  changes with hydatidiform mole and chorio-epithelioma, [Novak] 1773—ab
  cyst, complicating extra-uterine pregnancy, [Taliaferro] 1950—ab
  cyst, hydronephrotic kidney awakening suspicion of, [Conte] 1215—ab
  cysts in endometriosis, [Keene & Kimbrough] ★1164
  deficiency as cause *of sterility, [Macomber]* 621—ab
  dermoid perforated into sigmoid, [Mayer] 1789—ab
  disorders vs. gallstones, [Plaschkes] 636—ab
  dysfunction, hormonotherapy with blood of pregnant woman and with follicular fluid, [Maurizio] 828—ab
  endometriosis, [Keene & Kimbrough] ★1164
  extract, difference between sex hormone and, 1445
  extracts at menopause, 64
  follicle, hormone and cancer, 1350—E
  influence in sterility, [Rowe] ★1219
  insufficiency in adolescents, [Maranon] 375—ab; [Lawrence] ★1148
  papillary cysts arising from, hysterectomy for, [Fullerton & Faulkner] ★1563
  preparations, A. M. A. Council on Pharmacy and Chemistry statement on therapy with, 64
  products orally in menopause not established, 1119
  reaction in young rat to action of urine of pregnant women, [Molinengo] 1215—ab
  reactions in animals after spermatozoa injections, [Fulconis] 973—ab
  syphilitic gumma, painful symptoms, [Cobau] 165—ab
  therapy of menstrual disorders, [Novak] ★1221
  tissue, value given orally, 615
  tu[illegible] postmenopausal [illegible]—ab
  tu[illegible] 1134—ab
  tu[illegible] fibroma, [Martzloff] 78—ab
OVER NIGHT Cold Tablets, 430—BI
OVULATION, effect of lactation on, [Cunningham] 1621—ab
OXALURIA, 1855
OXFORD Ophthalmological Congress, 805
OXIDATION, nonoxidation theory of diabetes, 1508—E
OXYDOL name changed to Albutesta, 1347
OXYGEN, action on human uterus, [Bourne] 827—ab
  capacity and saturation of mother and fetus, [Goldbloom] 963—ab
  consumption after exertion, [Jahn] 1785—ab
  Davis Inhalator, 200
  debt, efficiency of human *muscles, 799—E*
  in Anesthesia: See Anesthesia, nitrous oxide
  in Blood: See Blood
  inhalations in tuberculosis, [Okslusow] 1388—ab
  respiration in atmosphere of, 875
  rooms for treatment of pneumonia at Michael Reese Hospital, 1104
  therapy apparatus, motorless, [Cecil & Plummer] ★1263
  treatment in epilepsy, [Murphey] 626—ab
OXYL-IODIDE, liver atrophy from, [Rabinowitz] ★1229
OXYTONIC, Sanovapor, 1365—BI
OXYURIS vermicularis infestation, rare syndromes, [Ranieri] 1057—ab
  anthelmintic action of pyrethrum, 278
OYSTERS as substitute for liver in therapeutic diet, [Weston] ★831
  mineral content, [Weston] ★836
OZONE, extract of cod liver oil exposed to, for tuberculosis, [Bergman] 977—ab

P

PACHYMENINGITIS, [Ody] 164—ab
PACKS, for erysipelas, [Ude & Platou] ★1
PAGET, *RICHARD, origin of alphabet, 1031*
PAIN: *See also Breast; Heart; Pelvis; Pericardium*; Stomach; Ureter; Viscera; etc.
  [Sutton] 228—ab
  diagnosis in toe and foot, 615
  effect on gastro-intestinal tract in psychoneuroses, [Moleen] ★910
  from increased spinal fluid pressure, [Pometta] 1215—ab
  growing, before and after tonsillectomy, [Kaiser] ★838
  in pyloric *and duodenal ulcers as cause of* incorrect diagnosis, [Cade] 1380—ab
  in tumors involving spinal cord, [Woltman] ★1398
  radiation of, in peptic ulcer, [Brown] ★1145
  referred, [Rudolf] 1532—ab

PAIN—Continued
  relief by morphine intravenously, [Iacobaeus] 312—ab
  relief by sympathectomy in hemiplegia, [Bombi] 1541—ab
  relief in obliterative vascular disease of lower extremity, [Smithwick] 1208—ab
  relief nostrum, Knewitz's Stopake Powders, 1523—BI; 1606—BI
  symptoms in ovary gumma, [Cobau] 165—ab
  syndromes, peripheral end of sectioned nerve in, [Waller] 760—ab
PAINT: See also Lacquer
  methanol—methyl alcohol, 816
PALATE, atypical herpes zoster of, [Camauër] 975—ab
PALATOL, 951—BI
PALLOR, facial, in postoperative death in infants, [Riser] 972—ab
PALM: See Hand
PALMER, FRANK L., 285—BI
PAM, Max Pam Metabolic Unit, 348
PAN-AMERICAN Child Congress, Sixth, 943
PANCREAS: See also Islands of Langerhans
  Extract: See also Insulin
  extract in sprue, [Castellani] 80—ab
  extract, value given orally, 615
  Fistula: See Fistula
  histamine effect on, [Neale] 1864—ab
  hormone, new, [Santenoise] 1459—ab
  hormone, new (Kallikrein), 676
  insufficiency with cirrhosis, [Herbain] 971—ab
  lipomatosis, 202—E
  necrosis, acute, severe hyperglycemia with, [Bernhard] 381—ab
  necrosis, blood sugar and diastase in, [Bernhard] 1217—ab
  necrosis, hemorrhagic steatopancreatic, [Scaglia] 1216—ab
  obesity and, [Faelli] 1459—ab
  rupture, [Fast] ★1668
  rupture, casuistics, [von Stapelmohr] 638—ab
  secretion, hyperinsulinism, [Faelli] 1459—ab
  tuberculosis, 1032
PANCREATITIS, acute, [Eliason] 1051—ab
  acute hemorrhagic: presenting yellow discoloration at umbilicus, [Johnston] ★1587
  chronic, 1517
  chronic, choledochus drainage through gallbladder in, [Santy] 1624—ab
  sequel of biliary infection, [Deaver] ★1641
PANDY Reaction: See Cerebrospinal Fluid, test
PANTOPON, reaction to, [Winans] ★199
PAPER, money, bacteria on, 1439
  wax, for mask, [Mellinger] ★662
PAPILLOMA: See also Adenopapilloma
  cysts of breast, [Bevan] ★1312
  of bladder, [Caylor] ★1736
  of eye and adnexa, [Cary] ★1806
  of larynx, [Lynch] ★1795
PAPYRACEUS, *ectopic fetus, expelled after* uterine curettage, [McFadyean] 1132—ab
PARACHUTE for air liners, 211
PARA-ENTEROCOCCUS in infants, [Palesa] 632—ab
PARAFFIN Oil: See Petrolatum, liquid
  plugs use in pulmonary tuberculosis, [Sachs] 977—ab
  wax bath for chilblains, [Humphris] 1623—ab
PARALDEHYDE to prevent cocaine intoxication, 1839—E
PARALYSIS: See also Diplegia; Hemiplegia; Paralysis, General; Paraplegia
  after vertebral fractures, 62
  Agitans: See also Parkinsonism
  agitans, primary juvenile, [van Bogaert] 1948—ab
  amyotrophic, of upper limbs, [Reggiani] 1382—ab
  Bell's, abnormal phenomena in, [Riddell] 1618—ab
  cerebral, in children, encephalography in, [Guttmann] 902—ab
  diabetic neuritis with, [Root] 299—ab
  Diaphragmatic (Therapeutic): See Nerve, phrenicectomy
  diphtheritic, [Montgomery] 1995—ab; [Friedemann] 1998—ab
  facial, and chronic nephritis, [Vinard] 1035—ab
  facial, symptom, [Wartenberg] 1462—ab
  from illuminating gas poisoning, [Biancalani] 1383—ab
  gastric, postoperative, prevention, [Hilarowicz] 831—ab
  genu recurvatum, cure, [Mayer] 1779—ab
  hysterical, [Barker] 967—ab
  Infantile: See Poliomyelitis
  jake (Jamaica ginger), [Jeter] ★112; [Merritt] *692—ab; 1029; 1672—E;* [Smith] 1700—ab
  Landry's, ascending, after rabies treatment, [Stuart] 234—ab
  laryngeal, 1439
  meningococcic meningitis, [Smithburn & others] ★776
  obstetric, [Jepson] 159—ab; 1846
  of hemidiaphragm, redistribution of respiration after, [Head] 299—ab
  of motor nerves of eye, [Cornil] 1211—ab
  of vocal cords, roentgenology, [Pancoast] ★1320
  Oppenheim sign, [Hall] ★706
  periodic, of abducens nerve, [Stern] 701—ab
PARALYSIS—Continued
  Progressive: See Paralysis, General
  spastic, ramisection for, [Royle] 1780—ab
  spinal, acute ascending, in pregnancy, [Hornung] 1461—ab
  therapeutic, of recurrent nerve in laryngeal tuberculosis, [Schugt] 169—ab
PARALYSIS, GENERAL, malaria treatment, [Unsworth] ★772; 1039; [Holmes] 1130—ab
  of insane, [Newman] 234—ab
  of insane, blood sedimentation rate in, [Petersen] 462—ab
  of insane, blood serum test, [Newman] 234—ab
  of insane, fever treatment with Spirochaeta hispanicum [Remlinger] 455—ab
  of insane, frequency in Helsingfors, [Rothström] 1546—ab
  of insane in adult compared with juvenile dementia paralytica, [Menninger] ★1499
  of insane in parents vs. neurosyphilis in children, [Dennie] ★1571
  of insane, malarial therapy, [Unsworth] ★772; [Holmes] 1130—ab
  of insane, pyrogenic action of sulphur in olive oil, [Shilvock] 1132—ab
  of insane, typhoid vaccine for, [Schelm] 627—ab
  treatment of eyes in taboparesis, 747
PARAMETRITIS, roentgen irritation-therapy, [Seitz] 1705—ab
PARAMETRIUM, perforation of uterine artery in purulent sac, [Inglima] 1136—ab
PARANASAL SINUSES: See Nose
PARAPHENYLENDIAMINE dermatitis from cosmetics, [MacKenna] 80—ab
  poisoning from shoe dyes, 739
PARAPLEGIA due to spinal cord compression, [Dassen] 238—ab
  spastic, ramisection for, [Royle] 1780—ab
PARASITE, diseases, treatment, 1112
  infestation, accidental, of digestive tube, [Qérangal des Essarts] 1381—ab
  Intestinal: See Intestines
  pseudoparasitic figures in human cancer, [Maisin] 973—ab
  surgical diseases of bile tract caused by, [Finkelstein] 829—ab
PARATHYROID, administration, long continued, *effect, [Day] 1456—ab*
  blood calcium regulation and, 356
  calcium-parathyroid-viosterol treatment of the thin child, 1038
  extract, osteitis fibrosa induced by, [Jaffe] 1628—ab
  hyperparathyroidism, [Sophian] ★483 [Pemberton] 961—ab; [Bulger] 963—ab
  hyperparathyroidism, fibrous osteodystrophy in, [Jaffe] 1941—ab
  interrelationship between spleen and, 937—E
  tumor and bone changes, [Snapper] 1375—ab
PARATHYROIDECTOMY, bone healing after, [Speed] 1863—ab
PARATYPHOID, bacillus, filtrable forms, 1031
  bacillus in foodstuffs, [Doyle] 1206—ab
  bacillus in sewage, [Begbie] 695—ab
  blood changes in, [Nyfeldt] 764—ab
  like infection due to Morgan's bacillus, [Havens] 298—ab
  Vaccine: See Typhoid combined vaccine
PARÉ, AMBROISE, ceremonies honoring, 1682
PARENTS: See also Paternity
  when they are related, 949; 1477—ab
PARESTHESIA: See Meralgia paresthetica
PARISOT-Richard's sign, 550
PARKE, DAVIS & CO., Standardized Cod Liver Oil, 729
  Ventriculin, 797; 1589
PARKINSONISM: See also Encephalitis, Epidemic, sequels
  pregnancy and, [Bland & Goldstein] ★473
  treatment, action of certain remedies in, [Wiersma] 1630—ab
  treatment, stramonium, [Hoedemaker & Burns] ★91; [Worster Drought] 374—ab; 1283
PARONYCHIA, 1197
  treatment, staphylococcus toxin, [Weise] ★324; [Greenbaum & Harkins] 815—C; [Weise] 1607—C
PAROTID GLAND, cancer, [Bérard] 973—ab
  tumors, [Benedict] 1943—ab
PAROTITIS, epidemic, in 25 day old infant, [Schiavone] 166—ab
  postoperative, causes, [Kovács] 376—ab
  primary meningitis and meningo-encephalitis in, [Weissenbach] 235—ab
PARROTS, Fever: See Psittacosis
  imports, ban lifted, 1514
  in Brazil in relation to psittacosis, 876
PARTURITION: See Labor
PASTE bandage for varicose ulcers, [Cellan-Jones] 1701—ab
PASTEUR, LOUIS, bronze portrait bust sent to University of Pennsylvania, 1680
  crystallography and, 1882—ab
  predecessor of, Dr. Duboué, honored, 1189
  portrait, fund for, completed by Philadelphia County Medical Society, 208
PASTEUR INSTITUTE, branch in French Guinea, 213
PASTEUR TREATMENT for cancer, O. C. Piper *convicted, 603*
  quinine administration during, 223
PASTEURIZATION: See Milk
PATCH test in contact dermatitis, [Ramirez] 1455—ab
PATELLA: See also Reflex, patellar
  dislocation, hereditary recurrent, [Moore] 825—ab
  osteomyelitis, 1119
  reconstruction, [Nowosseljzew] 1218—ab
  transplantation, [Moulonguet] 1539—ab
PATENT BLUE V, gradient of capillary permeability, 938—E
PATENT MEDICINES: See Nostrums
PATENTS, medical, 211; 213; 276; 484; 543
PATERNITY, determination by blood tests, [Wiener] 681—C; [Smith] 1195—C; 1684; [Mau] 1704—ab
  determinants of professional achievement, 116—E
  determination by finger prints, [Mau] 1704—ab
  determination, Zangemeister's method, [Rupp] 764—ab; [Mau] 1704—ab
PATHOLOGISTS, American Society of Clinical Pathologists, 421
  clinical, rôle of, [Sanford] ★1465
  conducting approved clinical laboratories, 289
PATHOLOGY: See also Laboratories, clinical
  American Journal of Clinical Pathology, 1355; 1843
  collection, greatest in the world at museum of Royal College of Surgeons, 277
  collection, Lockyer, 1436; 1516
  domain of the pathologic, 1505—ab
  Second International Congress of Comparative Pathology, 873
PATIENTS: See also Case Histories; under names of specific diseases such as Diabetes Mellitus; Heart disease; Scarlet Fever; etc.
  bond between doctor and, [Irons] ★243; 1397—ab
  preparation for operations, 1516
  provision of proper diet for, 1603
PAUL, JOHN H., to study respiratory diseases in Spitzbergen, 871
PAVIA "cancer cure," 1116—BI
PAVLOV, I. P.: Conditioned Reflexes, 415—E
PEDIATRICS: See also under Children; Hospitals, children
  calcium therapy during childhood, [Ochsenius] 379—ab
  child psychology and, [Anderson] ★1015
  Congress of Nepiology, 947
  department organized at University of Colorado, 1510
  diagnosis and prognosis in, [Morse] ★1645
  International Pediatric Congress, 351
  Philadelphia Pediatric Society prize, 1272
  Regional Italian Congress of Pediatrics, 877
  to whom does the health of childhood belong? [Richards] ★1011
PEEBLES, A., Survey of the Medical Facilities *of Shelby County, 599—E*
PEHAM, Prof. Dr., death, 676
PEKING man, 1358
PELLAGRA: See also Medicolegal Abstracts at end of letter M
  [Tarantelli] 1215—ab
  clinical syndromes that include achlorhydria, [McLester] ★719
  in South Africa, 810
  increase, North Carolina, 541
  like skin lesions due to ketogenic diet, [Greer] *★863; [Guthrie] ★1912*
  situation, Virginia, 1187
  treatment, arsphenamine, [Wilson] 967—ab
PELVIS, abscess, tuberculous, extraperitoneal, [Brady] ★338
  contracted, and disproportion, [McGoogan] 1454—ab
  contracted, test of labor before cesarean section in, [Brouha] 1213—ab
  diabetes insipidus and osteitis fibrosa polycystica, [Sophian] ★483
  disorders, sedimentation test in, [Kyger] 153—ab
  extraperitoneal conditions in women, *[Brady]* ★338
  hemangioma of connective tissue, [Frank] 754—ab
  hypoplasia with endocrine *malfunction,* [Lawrence] ★1149
  inflammation, *diathermy for,* [Büben] 1625—ab
  irradiation in child-bearing woman, [Findley] ★857
  pain, *chordotomy for,* [Beck] 1291—ab
  peritonitis, roentgen irritation-therapy, [Seitz] 1705—ab
  surgery, morbidity and mortality, [Dannreuther] *1866—ab*
  tuberculosis in female, [Jameson] 622—ab
PELVO-TONE, 814—BI
PEMPHIGUS, kidney function in, [Ayres] 893—ab
PENICILLIUM, green, sensitization to, [Ramirez & Eller] ★1082
PENIS: See also Phimosis; Priapism
  irritation, from contraceptive vaginal suppository, *1609*
  lymphatic swelling on, 684
  reconstruction after extensive gangrene, [Mallard] ★332

PENITENTIARY: See Prisons
PENSIONS, A. M. A. resolution on benefits for disabled veterans with nonservice disabilities, 48; 49
PENTOSURIA, sugar in, 1102—E
PEPPER, O. H. P., gives Scripps Clinic Lectures, 1510
PEPSIN, determinations, diagnostic value, [Polland] 963—ab
  in urine, [Rothschild] 239—ab
PEPSODENT, advertising, 1267—E
PEPTIC ULCER, after tuberculosis of perigastric lymph nodes, [Dagnini] 1625—ab
  biliary and hepatic factors in, [Berg] 230—ab
  cancer and, [Mayo] ★645; [Kirkegaard] 1546—ab
  classification of man into disease groups, 91—ab
  constitutional factor and, 91—ab; [Friedenwald] ★908
  diagnosis, alkali in, [Anfänger] 458—ab
  diagnosis (incorrect), pain in pyloric and duodenal ulcers as cause of, [Cade] 1380—ab
  diagnostic value of pepsin determinations, [Polland] 963—ab
  diagnostic value of xiphoid pain, [da Silva-Mello] 1623—ab
  duodenal, symptoms, [Hoffmann] 1543—ab
  duodenal, treatment, [Lahey] ★313
  duodenitis, duodenal ulcer and gastric ulcer, [Nickel] 227—ab
  gastric, acute in children, [Shore] 961—ab
  gastric, bacteriologic and clinical study, [Saunders] 961—ab
  gastric, consistency of diet vs. healing, [Fauley] 1376—ab
  gastric dilatation in, [Klason] 1878—ab
  gastric function in gastric and duodenal, [Smith & others] 74—ab
  gastric, treatment, [Lahey] ★313
  gastroduodenal, vs. Brunner's glands, [Pescatori] 631—ab
  in children, [Shore] 961—ab; [de Toni] 1949—ab
  mortality, surgical, [Gatewood] 1776—ab; [Horsley] 1776—ab
  pain in, radiation of, [Brown] ★1145
  pain or distress in, [Brown] ★1145
  pathogenesis of gastroduodenal, [Weiss] 1459—ab
  pathogenesis vs. benign gastric tumors, [Domanig] 310—ab
  perforated, acute, [Robitshek] 756—ab
  perforated, duodenal fistula after suture of, [Moulonguet] 1055—ab
  perforated, gastric and duodenal, hemorrhage in, [Behrend] ★1889
  perforated gastric and duodenal permanent results after suture, [Morville] 461—ab
  perforated gastric, gas peritonitis due to, [Wilmanns] 831—ab
  perforated gastric, suture treatment, [Kühnel] 1954—ab
  perforated, primary resection for, [Elving] 904—ab; [Judin] 1784—ab
  perforated, surgical end-results, [Neller] 1543—ab
  perforated, treatment, [Rapant] 381—ab
  perforating, what percentage are of syphilitic origin? 615
  perforation, acute free, of gastric and duodenal, [Semb] 1790—ab
  perforation into free abdominal cavity, [Singer] 229—ab
  perforations of gastric and duodenal, [Guaraldi] 761—ab
  reaction of content of gastro-intestinal tract, [Mann & Bollman] ★1722
  roentgen studies, [Feldman] 1536—ab
  sugar consumption and, [Stone] ★711
  surgical aspects including end-results, [Hartwell] 1777—ab
  surgical, mortality, [Gatewood] 1776—ab; [Horsley] 1776—ab
  surgical treatment, [Lahey] ★314; [Gibbon] 1777—ab
  surgical treatment, excision of duodenal, [Judd] 1777—ab
  surgical treatment, excision of gastric, [Hoffmann] 1543—ab
  surgical treatment, gastro-enterostomy in duodenal, 66; [Balfour] 1776—ab
  surgical treatment, gastro-enterostomy or gastropylorectomy? [Hortolomei] 1212—ab
  surgical treatment, gastro-enterostomy, results, [Balfour] 1776—ab
  surgical treatment, intestinal disorders after Madlener's, [König] 242—ab
  surgical treatment of bleeding gastric, [Kingreen] 380—ab
  surgical treatment of duodenal, [Thompson] 153—ab
  surgical treatment of gastric and duodenal, [St. John] 1777—ab; [Bloodgood] 1777—ab; [Finney] 1777—ab; [Reichel] 1952—ab
  surgical treatment, operations on suprarenals, [Crile] 1619—ab
  surgical treatment, pylorus sphincter resection, [Deaver] 1776—ab
  surgical treatment, resection of duodenal, [Mandl] 1304—ab
  surgical treatment, subtotal gastrectomy for duodenal, [Strauss & others] ★1883

PEPTIC ULCER—Continued
  surgical treatment, subtotal gastrectomy for gastric and duodenal, [Berg] 1291—ab
  treatment, acid neutralization in, [Palmer] 1127—ab
  treatment, conservative and operative, of gastric and duodenal, [Schur] 380—ab
  treatment, effects of prolonged use of alkaline powders, 1608
  treatment, medical, results, [Brown] ★1144
  treatment of gastric and duodenal, [Lahey] ★313
  treatment, rough vs. soft diet in chronic gastric, 1838—E
  treatment, Schiassi method, [Adreani] 761—ab
  treatment, silver nitrate, of gastric, [Semskow] 239—ab
  treatment, Sippy, [Brown] ★1144
PEPTIDE, in liver extract effective in pernicious anemia, [Minot & Cohn] 73—ab
PEPTONES, oral method of desensitization toward, 214
PERFUMES and pigmentation, 40—E
  toilet water dermatitis, [Lane & Strauss] ★717
PERIARTERITIS nodosa, [Kountz] 755—ab
  nodosa, atypical, [Stengel] 632—ab
PERICARDITIS, adhesive, diagnostic method, [Hochrein] 83—ab
  primary tuberculous, with effusion, [Audibert] 1212—ab
  rheumatic, with polypoid formations, [Bohrod] 755—ab
PERICARDIUM, protective devices for, 867—E
PERINEORRHAPHY, [Counseller & Stacy] ★984
PERINEUM, ectopia testis perinei, [Robertson] ★191
  surgery, abdominoperineal, for cancer of rectum, [Jones] ★1172
PERIODIC EXAMINATION: See Physical Examination
PERIODICALS: See Journals
PERIOSTEUM grafts, autoplastic and homoplastic, [Polacco] 697—ab
  grafts, free, wrapped around tendon, [Burman] 825—ab
  grafts, osteoperiosteal, [Dorrance] 961—ab
PERITONEUM, adhesions, prevention by amniotic fluid, [Lacey] 962—ab; [Giordanengo] 974—ab
  cancer, secondary, [Cottalorda] 1539—ab
  cavity, hemorrhage, treatment, [Garibdzanjan] 1784—ab
  cyst with ovary fibroma, [Martzloff] 78—ab
  Fistula: See Fistula
  immunity (local), Shwartzman phenomenon, [Frisch] 1374—ab
  syndromes in rheumatic fever, [Worms] 235—ab
  Tuberculosis: See Peritonitis, tuberculosis
PERITONITIS, acute, by propagation in biliary lithiasis, [Desjacques] 973—ab
  acute, 1917—E
  biliary, complicating choledocholithiasis, [Masciottra] 1542—ab
  chronic, with ureteroperitoneal fistula, [Hunner & Everett] ★327
  gas, due to perforated gastric ulcer, [Wilmanns] 831—ab
  meconium, [Boikan] 370—ab
  pelvis, roentgen-irritation therapy, [Seitz] 1705—ab
  pneumococcus, [Friedman] 624—ab; [Gibson] 1289—ab
  tuberculous, vs. ultraviolet rays, [Steinbach] 622—ab
  vomiting of, 271—E
PERIVISCERITIS, digestive, [Chiray] 1135—ab
PERKINS, CHARLES ALBERT, Jr., posing as physician's son, 1435; 1843
PERLÈCHE of adults, [Skolnik] 1533—ab
PERMEABILITY: See Capillaries; Cells; Placenta
PERNOCTON, 1430—E; ★1431
PEROXIDASE reaction, staining of blood smear, [Brinnitzer] 977—ab
PEROXIDE, benzoyl, for poison ivy intoxication, [Lamson] ★663; [Stevens] 1762—C
PERSHING HALL, memorial for physicians, 1676; 1746—E; 1840; 1919
PERSIMMON, phytobezoar (Diospyri virginianae), [Cole] 156—ab
PERSPIRATION: See Sweat
PERTHE'S DISEASE: See Osteochondritis deformans juvenilis
PERTUSSIS: See Whooping Cough
PESCAROLO, BELLOM, death, 1190
PESSARY, in bladders, [Dickinson] 286—C
  rubber uterine ring, as simple vein occluder, [Smith] 302
PET MILK, mineral values, [Weston] ★835
  Unsweetened Evaporated Milk, 1505
PETECHIAE, bandage sign, 1110
PETRAGNANI method of tuberculosis diagnosis, [Accorimboni] 165—ab
PETROLATUM, liquid, for oil immersion lens, 1609
  nostrum, Albolatum, 430—BI
  nostrum, Dionol, 1281—BI
PETROLEUM Ether: See Benzene
  fraction, Stoddard's solvent, 551
PHAGOCYTOSIS: See also Hydrophagocytosis
  of tubercle bacilli, [Westenrijk] 1877—ab

PHALANGES, atrophy in Raynaud's disease, [Kolodny] ★1020
PHARMACISTS, bill on activity of, Roumania, 1113
  National Association of Retail Druggists greetings to A. M. A., 51
PHARMACOLOGY and medical schools, [Edmunds] ★383
  conditioned reflexes and, 415—E
  fellowship in, for study of squill compounds, 418
  German Pharmacologic Society, 1114
  neglect of, 801—E
PHARMACOPEIA, British, revision, 210
  U. S., convention, [Hirschfelder] 220—C
PHARMACY: See also Medicolegal Abstracts at end of letter M
  International Congress of Military Medicine and Pharmacy, 737
[illegible] [Pancoast] ★1318
[illegible] Foundation
[illegible] Nuremedy, 680—BI
[illegible] of sympathetic stimulation on leukocyte count, 807
  luminal, at parturition cause of death of infant, 1690
  luminal, for essential hypertension, [Ayman] ★247
  luminal, toxicity, 550
  semianesthesia from, [Bartlett] 1051—ab
  sodium, dosage, 954
  soluble, dispensing acetylsalicylic acid and, 1366
  to prevent cocaine intoxication, 1839—E
  treatment, tic of salpingopalatinus muscle, [Stoll] ★796
PHENOL, absorption, 1197
  coefficient test, [Birkhaug] ★917
  compared with metaphen, [Birkhaug] ★917
  esters, pharmacologic action, [Smith] 1700—ab
  intravenously in tetanus, [Sironi] 164—ab
  parenterally in dermatology, [Matusis] 296—ab
  relieves itching in poison ivy, [Stevens] 1762—C
PHENOLPHTHALEIN in Slends Chewing Gum, Dr. Rusby's testimony, ★723; 730—E
PHENOLSULPHONPHTHALEIN, curve of elimination, [Chisholm] 448—ab
  test in ureteral fistula, [Hunner & Everett] ★329
PHENOQUAM, liver atrophy from, 345—E; [Rabinowitz] ★1229
PHENYO-CAFFEIN, 952—BI
PHILADELPHIA Pediatric Society, prize in pediatrics, 1272
PHILIPPINE ISLANDS: See also Filipinos
  medical colleges in, ★500; 535—E
PHILLIPS, WENDELL CHRISTOPHER, A. M. A. medal presented to, 118
PHIMOSIS in children, [Hadenfeldt] 170—ab
PHLEBITIS: See also Thrombophlebitis
  in pregnancy, 1366
PHLEGMASIA alba dolens, puerperal, [Ferru] 164—ab
PHLEGMON, deep, of hand, colloidal silver intra-arterially for, [Scollo] 305—ab
  duodenitis, [Hjor] 1060—ab
  metastatic gas, with Bacillus perfringens, [Botreau-Roussel] 972—ab
  of floor of mouth, [Wassmund] 635—ab
  of neck simultaneous with periurethral urinary, [Stutzin] 1545—ab
  treatment, irradiated substances, [Ried] 1218—ab
PHONETICS, International Society of Experimental Phonetics, 873
PHONOCARDIOGRAM of fetal heart, [Hyman] 1453—ab
PHOSPHATES: See also Pyrophosphates
  elimination in urine after giving insulin, [Gortz] 382—ab
PHOSPHATIDES in cardiac decompensation, [Boller] 633—ab
PHOSPHORUS, absorption in rickets, [Peola] 1541—ab
  behavior in persons with fractures, [Bellelli] 1215—ab
  cod liver oil with, for tuberculosis, [van Leersum] 829—ab
  deficient, foods deficient in, cause osteitis fibrosa, 1601
  effect of long continued parathyroid administration, [Day] 1456—ab
  in beef liver, calf liver, hog liver and oysters, [Weston] ★836
  in Blood: See Blood
  in commercial brands of milk, [Weston] ★835
  in diet, [Stone] ★713
  in rickets, effect, [Compere] 1995—ab
  minimal requirements in childhood, 597—E
  poisoning in children, [Aikman] ★1662
PHOTODYNAMIC substances vs. glycemia, [Monasterio] 457—ab
PHOTOGRAPHY, roentgen, of base of skull, [Christiansen] 901—ab
  stomach, [Aschner] 369—ab
PHOTOTHERAPY: See Heliotherapy; Ultraviolet Rays
PHRENIC Nerve: See Nerve
PHRENICECTOMY: See Nerve; Tuberculosis, Pulmonary
PHYLACOGEN, [Miller] ★464

- PHYSICAL DEFECTS: See Constitution
- PHYSICAL EDUCATION: See also Athletics; Exercise
  - Dr. McKenzie retires as professor of, 1434
- PHYSICAL EXAMINATION, before marriage, 546; 1360
  - given by interns in hospitals, ★515; ★516; 535—E
  - of auto drivers, 46; 607; 1275
  - of employees, of Milwaukee Road, car equipped for, 539
  - periodic, clinics for, 539
  - periodic, five year program, 804
  - required of medical students at University of Tennessee, 208
- PHYSICAL REASONABLENESS of life, [Hill] ★1393
- PHYSICAL STANDARDS, A. M. A. Committee on, for drivers of motor vehicles, 46; 47
  - of our population, England, 352
- PHYSICAL THERAPY: See also Blood Pressure, high
  - American Congress of, 541; 1029
  - A. M. A. Council on: See A. M. A.
  - American Physical Therapy Association, 1435
  - mechanophysiotherapy and surgical therapeutics, [Apostoleano] 1135—ab
  - rehabilitation of disabled, [Mock] ★31
  - teaching to undergraduate students, [Krusen] 159—ab
- PHYSICIANS: See also Advertising; Damages; Economics, Medical; Education, Medical, graduate; Ethics, Medical; Fees; Income; Insurance; Licensure; Malpractice; Martyrs; Medical Council; Medical Practice Acts; Medical Service; Medical Syndicates; Medicine; Questionnaires; Societies, Medical; Specialists; Surgeons; Tax; Tours; etc; and under Medicolegal Abstracts at end of letter M
  - A. M. A. memorial for, who died and served in World War, 1676; 1746—E; 1840; 1919
  - as artists, 280
  - as inventor, 1845
  - as poets, 810
  - as writer, 810
  - Association of American Physicians, 71
  - Association pour le développement des relations médicales, 875; 1925
  - Biography: See Biography
  - contributions to surgical progress, [Mayo] ★644
  - convention at Bari, 1926
  - Credit Association, county society forms, Indiana
  - death rate of surgeons vs., [Mayo] ★646
  - deaths, South Africa, 1441
  - determinants of professional achievement, 116—E
  - educated at home, U.S., 1597
  - employment by British Government, 1757
  - ethical order of proposed, Belgium, 1032
  - European, treatment by, for European officers of Indian civil and military services, 211
  - German, annual meeting, 1277; 1442
  - German, convention in Kolberg, 141
  - heart disease in, [Horine] 1129—ab
  - indigent, French association to aid, 353
  - Industrial: See Industrial
  - intern experience, ★508; 535—E
  - losses from bad accounts, 602
  - Netherlands Assembly of Control Physicians, 281
  - practising, and the industrial physician, [Sappington & Marbaker] ★1955
  - practising, charity by, 943
  - practising, passing of the family doctor, [Irons] ★245
  - practising, perform necropsies on command of coroner, England, 874
  - practising, problem of breast tumors from standpoint of, [Bevan] ★1311
  - practitioner's need of intelligent skepticism, [Christian] 373—ab
  - Protective Casualty Company, 1931—BI
  - public health movement and, [Ross] 693—ab
  - reinstatement, Connecticut, 207
  - relation to patient, [Irons] ★243; 1397—ab
  - relations to hospitals, 45
  - rights in choice of residence, 1035
  - rural, [Irons] ★245
  - rural, Albany Medical College survey, 55
  - salesman victimizes, Colorado, 870
  - son, posing as, 1435; 1843
  - successful, [Upham] ★551
  - supply, for rural districts, Canada, 1435
  - supply in U.S. and abroad in proportion to population, ★508; 535—E
  - supply, medical education of Bantu native, South Africa, 1112
  - supply, shortage, [Gayler] 155—ab
  - supply, warning against study of medicine, Austria, 214
  - tax on, "la patente," reduced, France, 875
  - Testimony: See Evidence
  - U. S. Government needs physicians, 1436
  - veteran, charter members of McKean County (Pa.) Medical Society, 135
  - veteran, Dr. A. T. Applegate, 1751
  - veteran, Dr. E. S. Lewis, 1884
  - veteran, Dr. G. B. McCallum, 1841
  - veteran, Dr. J. H. Todd, 1842
- PHYSICIANS—Continued
  - veteran, Dr. J. Vanderlaan, 668
  - waiting rooms, liability for articles stolen from, 876
  - what an opportunity you have, 644—ab
  - who are total abstainers, 1849
  - woman, first one appointed to hospitals of Paris, 353
  - women, hospital staffed by, for radium treatment of cancer, 606
  - women, in medical and other professions, England, 277
  - women in medicine, ★501; ★505; 535—E; 916
- PHYSICS, Johnson Foundation for Medical Physics, [Hill] ★1394
  - new, 1365—ab
  - physical reasonableness of life, [Hill] ★1393
- PHYSIOGNOMY and capillaries, 1685
- PHYSIOLOGIC SOLUTION: See Sodium chloride
- PHYSIOLOGISTS, conference, Ukraine, 1519
- PHYSIOLOGY and medicine, 740
  - disturbances incident to obstructive jaundice, [Ivy] ★1068
  - Dr. Fulton appointed professor of, at Yale, 1432
  - effects of sympathetic ganglionectomy, [Lewis] 374—ab
  - hominal: surgery in the future, 1357
  - in conquest of high altitudes, 115—E
  - observations on Kachenjunga (28,150 feet above sea level), 1030
  - physical reasonableness of life, [Hill] ★1393
  - role of clinical pathologist, [Sanford] ★1165
- PHYSIOTHERAPY: See Physical Therapy
- PHYSIQUE: See Constitution
- PHYSOSTIGMINE, effect of sympathetic stimulation on leukocyte count, 807
  - salicylate to regulate anesthesia, [Garrelon] 1948—ab
- PHYTOBEZOAR (Diospyri virginianae), [Cole] 156—ab
- PHYTOLACCA in Slends Chewing Gum, Dr. Rusby's testimony, ★723; 730—E
- PIA MATER vessels vs. blood oxygen-carbon dioxide content, [Wolff] 296—ab
- PICA, human infestation with rat tapeworm, [Clark] ★1342
  - perverted appetite, or, 287
- PICRIC ACID: See Trinitrophenol
- PIE crust, digestion of, [Childrey] 1381—ab
  - food poisoning traced to, 1679
  - poisoning from cream custard, 910
- PIEDELIEVRE-Bernard-Claude test, 550
- PIEDRA, [Aars] 1205—ab
- PIG: See Hog; Pork
- PIGMENTATION, perfumes and, 40—E; [Lane & Strauss] ★717
  - pigmented mole of sole of foot, [Kurtz] ★1586
  - yellow, at umbilicus in pancreatitis, [Johnston] ★1587
- PIGMENTS, dermal, and posterior pituitary extracts, 483—ab
  - vitamin A and carotene, 937—E
- PILES: See Hemorrhoids
- PILOCARPINE, effect of sympathetic stimulation on leukocyte count, 807
  - treatment of postoperative retention of urine, [Fiorini] 761—ab; [Rotthaus] 1543—ab
  - treatment of progressive muscular dystrophy, [Kuré] 901—ab
- PINWORM: See Oxyuris
- PIPER, O. C., conviction, 603
- PIQÛRE, Claude Bernard's theory, [Hiller] 459—ab
- PIRQUET'S cutaneous allergy in pulmonary tuberculosis, [Parodi] 1056—ab
  - reaction, positive, in first three years of life, [Kjer-Petersen] 1878—ab
  - skin reaction and intracutaneous reaction to tuberculosis, 352
  - skin reaction with human and bovine tuberculin, [Benvenuti] 376—ab
  - tuberculin reaction compared with dermatubin test, [Goldberg] 755—ab
- PISTONS that stick in syringes, 1113
- PITCH poisoning in children, [Aikman] ★1662
- PITCHERS' elbow, [Kirby] ★404
- PITUITARY BODY, anterior lobe effect on development of male genitals, 1191
  - cachexia, [Herman] 1701—ab; [Reiche] 1876—ab
  - changes with hydatidiform mole and chorio-epithelioma, [Novak] 1773—ab
  - diabetes mellitus and, 1846
  - dyspituitarism, lean types, 1633—ab
  - hormone and ovarian extracts, 1445
  - hormone, antehypophyseal, [Fulconis] 973—ab
  - hormone, anterior, actions, [Falta] 1874—ab
  - hormone, anterior, in blood of gynecologic patients, [Fluhmann] 753—ab
  - hormone in tissues from cystic mole or chorio-epithelioma, [Zondek] 1788—ab
  - Hormone in Urine: See also Aschheim-Zondek Test
  - hormone in urine of pregnant in treatment of menstrual disorders, [Zamkoff] 759—ab
  - hormone of anterior lobe effect on hypogenitalism, [Schapiro] 1704—ab
  - influence in sterility, [Rowe] ★1219
- PITUITARY BODY—Continued
  - insufficiency in menstrual disorders in adolescents, [Lawrence] ★1148; [Novak] ★1221
  - spontaneous hypoglycemia, [Wilder] 167—ab
  - tumors, roentgenotherapy, [Nyström] 638—ab
- PITUITARY EXTRACT: See also Pituitrin
  - posterior, and dermal pigments, 483—ab
  - posterior lobe, in local anesthesia, [Wermer] 308—ab
  - preparations, desiccated, omitted from N. N. R., 200; 201
  - solution, use in herpes zoster, [Sidlick] 558—ab
  - surgical, nasal spray of, controls bowel movement, [Sophian] 894—ab
  - treatment of diabetes insipidus and osteitis fibrosa polycystica, [Sophian] ★483
  - treatment of impotence after juvenile excess, 1447
  - treatment of menstruation disorders, [Lawrence] ★1148; [Novak] ★1221
  - treatment of obesity with impotence, 1690
  - value for impotence after excess, 1990
- PITUITRIN, sensibility of neoplasm to action of, Slosse's sign, 550
  - test, Ascoli's and Faguioli's, 550
- PLACEMENT (industrial) bureau for disabled, [Mock] ★33
  - bureau for students, 1682
  - of cardiac patients, 432; 941
  - of diabetics, 1760
- PLACENTA, blood (retroplacental), iso-agglutinin in, [Hamburger] 1464—ab
  - blood volume in, 1039
  - choline in, [Wrede] 306—ab
  - from case of malaria, [Wislocki] 1294—ab
  - inflammation, [Summerill] 230—ab
  - permeability, intra-uterine transmission of tuberculosis, [Nystrom] 621—ab
  - permeability, intra-uterine transmission of typhoid, [Wing & Troppoli] ★405
  - praevia, counteracting fatal hemorrhages, [Helm] 1384—ab
  - separation, accidental, [Demmond] 76—ab
  - tumor, chorio-epithelioma, [Novak] 1203—ab
  - tumor, congenital malignant, metastasis to liver, [Weber] 169—ab
- PLAGUES and growth of civilization, 1821—ab
  - vaccination in French army, 808
  - vaccine, Haffkine's, 1599
- PLANT'S Magnesia Wafers, 935
- PLANTS: See also Flowers; Vegetables; etc.
  - production of degeneration phenomena in, 142
- PLASMA: See Serum
- PLASMOCHIN treatment of malaria, [Miller] 75—ab; [Bass] ★989
- PLASMODIUM Malariae: See Malaria
- PLASMOMA, malignant, of extra-osseous origin, [Jackson & Parker] 74—ab
- PLASTER, Adhesive: See Adhesive Plaster
  - Impallomeni's triangular plaster splint, humerus, [Marri] 632—ab
- PLASTERS, mustard, for in babies suffering from pneumonia or bronchopneumonia, 67
  - of Paris, cement-starch mixtures as substitute for, [Taylor] 446—ab
- PLATE, Cough Plate Method: See Whooping Cough
- PLATELETS: See Blood platelets
- PLAYGROUNDS, children's, first aid at, 1032
- PLAYS: See Motion Pictures
- PLEURA, adhesions, division in artificial pneumothorax, [Sachs] 977—ab
  - disease, diaphragmatic paralysis for, [Yates] 1863—ab
  - effusions, [Pinner] 823—ab
  - space, free fluid in, [Lasersohn] 1457—ab
  - tuberculosis, [Webb] ★28; [Opie] ★1154
  - tuberculosis, purulent, drainage, [Toussaint] 973—ab
- PLEURISY diagnosis, clinical sign, 427
  - treatment, ethylhydrocupreine hydrochloride, [Acuña] 1057—ab
  - Tuberculous: See Pleura tuberculosis
  - with effusion, diagnosis, 146
  - with effusion, prognosis, [Gaarde] ★249
- PLEXUSES, nerve, relation to lymph nodes, [Kiss] 1293—ab
- PLUMBISM: See Lead poisoning
- PLURALS of nouns ending in "itis," 287
  - of leptospira, etc., 1933
- PNEUMATICA, 680—BI
- PNEUMOBACILLUS meningitis secondary to otitis media, [Malis] 1293—ab
- PNEUMOCEPHALUS, traumatic, [Rand] 230—ab
- PNEUMOCOCCUS, acute empyema, [Locke] 1050—ab
  - antiserum; Antipneumococcus Serum, Type I, 1745
  - endocarditis, acute, after teeth extraction, [Kapsinow] ★409
  - etiology of common cold, [Shibley & others] ★1553
  - immunization against, oral, 1024—E
  - Meningitis: See Meningitis
  - Peritonitis: See Peritonitis
  - pneumonia, host factors in, [Sharp] 1535—ab
  - serum, Felton's in pneumonia, [Cecil & Plummer] ★1550
  - serums, mouse protection test on, [Cecil & Plummer] ★1550

PNEUMOCOCCUS—Continued
  serums not acceptable for N. N. R., 935
  type I, effect of route of immunization on immunity response to, 733—E
  type I pneumonia, [Cecil & Plummer] *1547
  type V, colds, bronchitis and pneumonia due to, [Schroder] 231—ab
PNEUMONIA: See also Bronchopneumonia
  acapnia in, [Henderson] *572
  acute lobar, lung puncture in, [Stewart] 1298—ab
  before and after tonsillectomy, [Kaiser] *838
  chlorine metabolism in, [Scholz] 1627—ab
  complicating meningococcic meningitis, [Smithburn & others] *776
  epidemic due to type V pneumococci, [Schroder] 231—ab
  etiology, dust, [Russell] *1714
  etiology, dust inhalation and iron ore mining, [Collis] 1377—ab
  etiology, non-lactose-fermenting bacillus, [Frazer] 896—ab
  in children, [Trask] 449—ab; [Plummer] 1374—ab
  in early infancy, [Cassoute] 1380—ab
  influenzal, after vaccination, [Tuthill] 1534—ab
  lobar, digitalis therapy, [Niles] 1289—ab
  lobar, homologous convalescent serum for, [Beebe] 1865—ab
  lobar, in infants, mustard plasters for, 67
  lobar, investigated at Rockefeller Institute, 942
  lobar, prognostic value leukocyte count, [Middleton] 444—ab
  lobar, serotherapy, [Schottmüller] 633—ab
  medical shock in, [Atchley] *386
  microscopic agglutination test in, [Sabin] 371—ab
  nostrum, Dr. B. J. Cline's, Poplar Bluff, Mo., 1688—BI
  nostrum, Fluin, 882—BI
  patients desired for study of, 1677
  pneumococcus, host factors in, [Sharp] 1535—ab
  pneumococcus type I; specific therapy, [Cecil & Plummer] *1547
  postoperative, prevention, [Henderson] *575
  skin reactions in, [Francis] 1535—ab
  therapeutic effect on preexisting epilepsy, [Guthrie] 1534—ab
  treatment, [Spector] *789; [Bethes] *925
  treatment, Aufrecht's method, by injections of quinine, 1283
  treatment, Felton's serum, 935; [Cecil & Plummer] *1549
  treatment, Huntoon's antibody solution, [Cecil & Plummer] *1549
  treatment of acute empyema thoracis after, [Foster] 961—ab
  treatment, oxygen rooms for, at Michael Reese, 1104
  treatment, serum, [Miller] *465; [Cecil & Plummer] *1547
  treatment, sodium chloride solution, [Sabatini] 561—ab
  treatment, value of digitalis in, [Wyckoff & others] *1243
PNEUMONITIS, nontuberculous suppurative, treatment, [Alexander & Buckingham] *1478
PNEUMONOCONIOSIS in mixer of talcum powder, 684
  serum-calcium in, [Skokoloff] 1533—ab
  silicosis and, 1989
PNEUMO-PHTHYSINE, 1606—BI
PNEUMOTACHOGRAPH, registers velocity of
ab
opneumothorax
1622—ab
  spontaneous or accidental, cannula for, [Bigger] *935
  syncope due to, [Bonanno] 1136—ab
PNEUMOTHORAX, ARTIFICIAL: See also Tuberculosis, Pulmonary, artificial pneumothorax in
  digestive *troubles* from, [Bonafé] 1702—ab
  division of pleural adhesions in, [Sachs] 977—ab
  electrocardiogram in, [Perrin] 970—ab
  phrenicectomy combined with, [Udaondo] 1382—ab
  treatment of nontuberculous suppurative pneumonitis, abscess and bronchiectasis, [Alexander & Buckingham] *1478
  venous pressure in, [Bosviel] 1212—ab
POETS, physicians as, 810
POISON: See Venom; Medicolegal Abstracts at end of letter M
POISON IVY: See Rhus
POISONING: See also Barbital; Bromide; Carbon Monoxide; Cyanide; Food; Strychnine; etc.
  accidental, of children, [Aikman] *1662
POLICE chiefs in Tokyo discuss health problems, 1360
  physical standard of population, England, 352
POLIOMYELITIS, acute, [Reynolds] 75—ab
  acute anterior, Drinker respirator for, [Drinker & others] *1249
  acute, sanitary condition, Belgium, 140
  acute, second attacks, [Still] 1780—ab
  anterior, sympathectomy effect on growth of legs shortened from, [Harris] 1779—ab
POLIOMYELITIS—Continued
  epidemic, Alsace, 808
  epidemic, California, 207; 418; 870
  epidemic, France, 1189; 1359
  epidemic, Louisiana, 735
  epidemics (milk-borne) in rural areas, 1598
  epidemiology in Netherlands, [Terburgh] 1140—ab
  fragility and deficient healing of bone, [Tumpeer & McNealy] *19
  immunity in mothers and new-born, [Aycock] 1535—ab
  immunity in normal individuals in urban and rural communities, [Aycock] 298—ab
  immunization, 738
  in central Europe, 949
  in children, Lange test in, [Peola] 1215—ab
  in Netherlands, 948; 1441
  in Syracuse, 540
  infection, postvaccinal, [Ustvedt] 84—ab
  pathogenesis, [Hurst] 1946—ab
  poliomyeliticidal action of normal human serum vs. convalescent serum, 1269—E
  prognosis of, cannot be determined by spinal fluid cell count, 1608
  serum for distribution to physicians, Belgium, 741
  serum, transported by airplane from Paris to Alexandria, 424
  situation, U. S., 1274; 1753
  status, Ohio, 1513
  treatment, diathermy, [Osterreicher] 1785—ab
  treatment, serotherapy, 1277
  treatment, serum of former patients, [Netter] 1381—ab
  treatment, transfusion, [Landon] 1531—ab
  virus, action of serum of normals on, [Fairbrother] 1781—ab
  virus, path of spread of, 738
POLISH Medical and Dental Association of America, 1356
POLITICS, governor orders faculty members dropped at University of Mississippi School of Medicine, 349; 538—E; 871
  Indian politicians nullify law for preventing precocious maternity, 1188
  public health party, France, 278
t: See Pregnancy,
35
1913
  hay-fever and food allergy, [Rowe] 1456—ab
  Ragweed: See Ragweed
  specificity, [Piness & Miller] 293—ab
  tree pollenosis, [Bernton] 301—ab
POLYARTHRITIS: See Arthritis
POLYCYTHEMIA, [Fotter] 628—ab
  diagnostic value of increased spinal fluid pressure, [Mayer] 379—ab
  treatment, spleen, [Kähler] 633—ab
POLYDACTYLISM, [Wiener] 431—C
POLYGLANDINE and Polyglandol, 814—BI
POLYNEURITIS: See Neuritis
POLYPEPTIDORRHACHIA: See Cerebrospinal Fluid
POLYPS: See also Fibroma, polypoid
  fibroma causing ball-valve action, [Jacobi] 1126—ab
  multiple, with chronic ulcerative colitis, [Bargen] 1047—ab
  of large bowel, [Fansler] *1969
  precancerous, diathermy in, [Soper] 299—ab
POMPEIAN OLIVE OIL for, 35
POMPHOLYX, [MacKee] 1160—ab
PONNDORF'S tuberculosis vaccination, [Haase] 829—ab
POOLS: See Swimming Pools
POOR, million for the sick poor, 1026
  St. Louis Milk Commission discontinues free distribution, 1921
POPPY-SEED OIL: See Iodized Oil
POPULATION: See also Vital Statistics
  deterioration, 1109
  distribution, 1515
  of Vienna, 1985
  physical standard, England, 352
  physicians in proportion to, *508; 535—E
  survey, England, 1437
PORGES-Pollatschek skin test for pregnancy, [Strauss] 446—ab, 879
PORK: See also Hog; Sausage
  intestinal brucella infection from, [Leavell & others] *860
  trichinosis from eating, 40—E; [Carter] *1420
PORTLAND (Ore.) Medical Society and Coffey-Humber treatment, 1349—E
PORTO RICO, report on health conditions in, 619
POSITION: See Posture
POSTER, German Society for Combating Quackery, 1441—BI
POSTGRADUATE Medical Association of North America, 1438
POSTURE, changes vs blood velocity and volume flow, [Bock] 449—ab
  dysmenorrhea and, [Miller] *1796
  faulty, cardiac symptoms due to, [Stoll] 443—ab
  gravity and circulation, 1837—E
  in sleep, [Younger] 550—C
  spinal column and other supporting structures, [Schanz] 829—ab
POTAINIAN murmur, 570
POTASSIUM, bismuth tartrate, excretion, [Hanzlik] 1533—ab
  bismuth tartrate, for syphilis, [Shivers] 1205—ab
  bromide and conditioned reflexes, 415—E
  bromide, Hammond's mixture, 1119
  ferricyanide reaction in icterus, [Van den *Bergh*] 1951—ab
  hydroxide poisoning in children, [Aikman] *1662
  in diet, [Stone] *713
  in skeletal muscle, [Pilcher] 1864—ab
  iodide, action, 145
  iodide, allergy of skin in skin diseases, [*Jaffé*] 459—ab
  iodide and normal electrocardiogram, [McEachern] 1864—ab
  iodide and pulse rate, [McEachern] 1863—ab
  iodide, complement fixation test in leprosy, 427
  iodide, for arterial hypertension, [Weiss & Ellis] *846
  iodide, intraperitoneally vs. proliferative activity of thyroid, [Chouke] 1048—ab
  iodide or sodium iodide, and sodium nitrate, solution a rational way to give? 953
  permanganate for controlling hemorrhage, [Hiden] 628—ab
  permanganate plus thyroid, treatment of essential hypertension, [Ayman] *247
  sodium potassium bismuthyl tartrate, 797
  thiocyanate, *for blood pressure,* [Ayman] *247; [Saleeby] 965—ab
POWDER, dusting, for poison ivy intoxication, [Lamson] *663
  manufacture, effects of sodium nitrate in, 1282
  or fat in care of infant's skin, [Bayer] 1998—ab
POWER, D'ARCY, 1678
POYNTON, FREDERICK J., awarded Dawson Williams prize, 671
PRACTICE OF MEDICINE: See Malpractice; Medicine, practice; Physicians, practicing, and under Medicolegal *Abstracts at end of* letter M
PRECIPITATES, insoluble, in diphtheria and *tetanus immunization, [Glenny] 1131—ab*
PRECIPITATION tests for syphilis, [Eagle] 1863—ab
PRECIPITIN, collateral specific, in immune *serum,* 802—E
PRECORDIUM pain, 1854
PREGNANCY: See also Abortion; Eclampsia; Fetus; Labor; Maternal Mortality; Obstetrics; Puerperal Infection; Puerperium; etc.
  anemia of, [Nalle] 162—ab
  anemia (pernicious) in, [Heim] 311—ab; [Wills] 1054—ab; [Volpe] 1783—ab
  anemia (physiologic) of, [Bland] 300—ab
  anesthesia for operations on gravid uterus, [Featherstone] 1616—ab; [Featherstone] 1945—ab
  at various ages, 35 vs. 25, 1197
  blood calcium in, [Damblé] 306—ab
  blood cholesterol and bilirubin in mother and child, [Hinglais] 1870—ab
  blood in, hormone therapy with, [Maruizio] 828—ab
  blood platelets in, [Bland] 1203—ab
  blood sedimentation test in, [Dodds] 758—ab; [Jackson] 1869—ab
  complications, acute ascending spinal paralysis, [Hornung] 1461—ab
  complications, acute pulmonary edema, [Bonn] 893—ab
  complications, albuminuria, edema, etc., [Huggins & Bucy] *653
  complications, allergic disease, [*Beckman*] *1582
  complications, asthma; hay-fever, [Williamson] 1203—ab
  complications, chorea, [Selitzky] 630—ab
  complications, diabetes insipidus, [Anselmino] 1388—ab
  complications, diabetes mellitus, [*Nevinny*] 306—ab; 1366
  complications, edema, [Baráth] 1877—ab
  complications, granuloma inguinale, [Wilson] *1093
  complications, hypertension, *bismuth subnitrate* in, [Stieglitz] *814
  complications, hyperthyroidism, [Hinton] 1203—ab
  complications, hypothyroidism, [Brown] 1700—ab
  complications, parkinsonism, [Bland & Goldstein] *473
  complications, phlebitis, 1366
  complications, pulmonary tuberculosis, exacerbation in, [Lydtin] 310—ab
  complications, pyelitis, [Rossenbeck] 381—ab
  complications, subacute bacterial endocarditis, [Kobacker] *266
  complications, syphilis, treatment, [Wile & Shaw] *1791
  complications, tapeworm in, removal, 1010
  complications, tuberculosis, [Matthews & Bryant] *1707
  complications, typhoid in, [Villarama] 1137—ab

[illegible]
[illegible] t, [Stal] 242
[illegible] l—E; [Stone] [illegible] [Fanz] 1617—ab; [Ehrhardt] 1627—ab; [Mack] 1866—ab
  diagnosis, bromine test, [Dodds] 80—ab
  diagnosis, by filtered morning urine plus acetic acid, [Laffont] 974—ab
  diagnosis, by Sdrodowski modification of Abderhalden test, [Segre] 1625—ab
  diagnosis, Porges-Pollatschek skin test, [Strauss] 446—ab; 879
  diagnosis, positive reaction in chorio-epithelioma, [Ehrhardt] 832—ab
  Dick test in, [Baird] 1996—ab
  diet in, Italian commission to compile model, 60
  Duration: See also Pregnancy, prolonged
  duration, fetus retained for 26 months, [Lichtwardt] 624—ab
  effect on heart, [Reid] ★1470; (discussion) 1476
  ergosterol overdosage effect on, [Centanni] 1783—ab
  extra-uterine, [Urdan] 1453—ab; [Behney] ★1557
  extra-uterine, abdominal, [Thrush] 1699—ab
  extra-uterine, at term, [Hébert] 1213—ab
  extra-uterine, fetus papyraceus expelled after uterine curettage, [McFayden] 1132—ab
  extra-uterine, occlusions of tubal lumen, [Watkins & Menne] ★1647
  extra-uterine, perforation of uterine artery in parametric purulent sac, [Inglima] 1136—ab
  extra-uterine, with living fetus complicating ovarian cyst, [Tallaferro] 1950—ab
  gastric juice in, [Arzt] 1454—ab
  gemellary, death of one twin, [Aburel] 1300—ab
  heart in, [Reid] ★1468; [Herrmann & King] ★1472; (discussion) 1476
  Interruption of: See Abortion
  lactic acid formation in muscles increased, [Hoffmann] 1627—ab
  lactic acid in blood increased, [Hoffmann] 1626—ab
  Multiple: See Twins
  pelvic irradiation in, [Findley] ★857
  prolonged, [Köhler] 1627—ab
  prolonged by corpus luteum extracts, [Miklòs] 1060—ab
  pupillary reaction, [Bercovitz] 621—ab
  Reaction: See Pregnancy, diagnosis
  roentgen study: [Menees] 1861—ab
  thyroid in, [Reycraft] 1208—ab
  toxemias, calcium partition in, [Cantarow] 1866—ab
  toxemias, dextrose for, [McConnell] 416—ab
  toxemias, hepatic extract for, [Reycraft] 621—ab
  toxemias, occult nephritis relation to, [Browne] 1868—ab
  tuberculosis transmitted to fetus, [Nystrom] 621—ab
  urine in, ovarian reaction of rat to, [Molinengo] 1215—ab
  vital capacity in last month, [Alward] 1454—ab
  vomiting of, venoclysis, [Hendon] ★1175
  vomiting of, vs. vestibular function, [Frey] 380—ab
  Wassermann plus in, sign of syphilis? 1196
PREMEDICAL WORK: See Education, Medical
PRESCRIPTION Alcohol: See Alcohol
  iron in, [Henderson] 1616—ab
  of Copernicus, 1114
PRESENTATION: See Labor
PREVENTIVE MEDICINE, Institute of, at Strasbourg, 946
  New York City health department brochure on, 420
PRIAPISM, myeloid leukemia with, an early symptom, [Achard] 759—ab
PRINTER'S ink, dermatitis from, [Ramirez & Eller] ★1082
PRISM-refractometer, 1117
PRISONERS: See Criminals; Prisons
PRISONS, A. M. A. resolution on psychiatric service in, 126; 346—E; [Hoffman] 681—C
  execution of R. H. White by hydrocyanic acid gas, [Hamer] ★661
  penitentiary management journal: *Rivista di diritto penitenziario*, 741
PRITCHARD, J. S., 1751
PRIVILEGED COMMUNICATIONS, A. M. A. resolution that prohibition and narcotic laws violate patient's right of privacy regarding his disease, (v. 94) 2073; 46; 50
PRIVY, Beccari method of refuse disposal, 948
PRIZES, Alvarenga, for 1931 announced, 1187
  Alvarenga, to Dr. H. A. Harris, 736
  A. M. A. Committee on Awards on Exhibits, report, 133
  A. M. A. ex-presidents given emblems, 117
  Association d'urologie, 1845
  Boas, for paper on metabolism diseases, 1849
  British Medical Association, 1029
  Casselberry Fund, 872
  Dawson Williams, to Dr. Frederic J. Poynton, 671
  Goethe, to Dr. Sigmund Freud, 1108
PRIZES—Continued
  Grand Prix de l'Académie francaise, 944
  Güemes, awarded, Argentina, 1847
  Harman, to Drs. Armstrong and Burt-White, 805
  Hastings, to Dr. William Henry Bradley, 805
  International Red Cross Committee, for detecting mustard gas, 1436
  Italian League for Combating Cancer, 737
  Mackenzie medal to Prof. J. dan der Hoeve, 1108
  Medical Association of South Africa, first gold medal to Dr. Darley-Hartley, 1113
  Moxon Gold Medal, 914
  Nobel, to Dr. Landsteiner, 1435; 1749—E
  Osiris, 944
  Philadelphia Pediatric Society, 1272
  Riberi, international contest for, 60
  Scheele Medal awarded Dr. Otto Folin, 1921
  to women with six children, Turkey, 1984
  Tuesch, 1845
  Uruguayan Association Against Cancer, 1436
  Weber-Parkes, 914
  Weinberg medal, 1601
  Wilde, awarded, 1847
PROCAINE HYDROCHLORIDE anesthesia in tonsillectomy, 614
  epinephrine solutions for burns, [Novak] 1788—ab
  intoxication, preventing, 1839—E
  solution use in varicose vein sloughs, [Kilbourne] ★787
  use in larynx tuberculosis, [Schugt] 169—ab
PROFESSION, heart disease in professional men, [Horine] 1129—ab
  Medical: See Medicine, profession of
  women in medical and other professions, England, 277
PROFESSIONAL SECRECY: See Privileged Communications
PROFESSOR: See also Teacher; University
  bequeaths his body to hospital, 1110
  censured for advertising, France, 1276
  suspended pending completion of Lübeck investigation, 352; 357; 676
  who should hold the title? 1685
PROGNOSIS: See also under names of specific diseases
  in pediatrics, [Morse] ★1645
  problems involved in, 18—ab
PROGRESS, control of nature, 1262—ab
PROHIBITION: See also Alcohol; National Prohibition Act
  defeated in Victoria, Australia, 216
  effects of law limiting sale of alcohol, Belgium, 1602
PRONTO, 1444—BI
PROPRIETARY medicines, regulation, Germany, 548
  reagent, Albutesta, 1347
PROSTATE, blastomycosis, (correction) 56
  disease, nostrum, Infra-Red Ray Prosto-Therm, 814—BI
  engorgement from steady use of contraceptive sheaths, 684
  enlarged, benign, suprapubic prostatectomy for, [Corn & Pierce] 76—ab
  enlarged, roentgen therapy, [Braeunig] 1952—ab
  fibrous, surgery of, [Crabtree] 295—ab
  tumor, echinococcus cyst of Douglas' pouch simulating, [Battista] 305—ab
PROSTATECTOMY, complications, [Dakin] ★1822
  primary closure in, [Gibson] 623—ab
  results after, [Katz] 972—ab
  suprapubic, for benign hypertrophy, [Corn & Pierce] 76—ab
PROSTATITIS, gonorrheal spurs a misnomer, [von Lackum & Palomeque] ★472
PROSTHESIS, burning of roof of mouth from artificial denture, 1366
PROSTITUTION, houses of, closed in Strasbourg, 1276
  law against venereal disease, Bucharest, 811
  taxes on prostitutes abolished, Turkey, 1984
PROSTONE Medicated Ointment, 814—BI
PROSTO-THERM, Infra-Red Ray, 814—BI
PROTEASE, to confer immunity against tubercle bacilli, [Fontela] 306—ab
PROTEIN: See also Albumin; Eggs; Proteose; etc.
  alien, secretion in human milk, 1593—E
  cereal, biologic value, [Mattill] 756—ab
  denaturization rate, relation to specific antibodies, 417—E
  di[illegible] 1673—E
  di[illegible] nenace? 866—E; [Moulton] 1762—C
  diet, high, vs. growth of fibroblasts in healing wounds, [Harvey] 158—ab
  diet, insufficient, vs. menstrual disorders in adolescents [Lawrence] ★1148
  diet, low, plus calcium salts, in essential *hypertension*, [Ayman] ★247
  dietary facts, fads and fancies, [Stone] ★710
  in Blood: See Blood
  in Cerebrospinal Fluid: See Cerebrospinal Fluid
  intake vs. nitrogen retention and albuminuria in nephrosis, [Cowie] 1373—ab
  metabolism vs. insulin in pulmonary tuberculosis in children, [Mondini] 561—ab
PROTEIN—Continued
  metabolism vs. muscle work, 37—E
  molecule, specificity, 270—E
  requirement of the preschool child, 1351—E
  sensitization, reaction to pantopon simulating, [Winans] ★199
  sensitization to human serum from convalescent measles serum injection? 288
  substance isolated from urine of asthmatic patients which produces wheals, 423
  therapy, [Miller] ★465
  therapy in angina pectoris, [Schmidt] 1386—ab
  therapy in insanity, [Robb] 453—ab
  therapy, milk intramuscularly in tic douloureux, [Ball] 894—ab
  therapy, milk injections in arthritis "rheumatism" [Shahon] 1619—ab
  vegetable, as infant food, [Ribadeau-Dumas] 898—ab
PROTEOSE in urine in allergic conditions, [Oriel] 897—ab
PROTOZOA in Intestines: See Intestines
PRUDDEN, T. MITCHELL, Biographical Sketches and Letters of, 1680
PRURITUS, bath, [Gaines] 1129—ab
  genital, radioactive mud for, [Iribarne] 1950—ab
  hiemalis, 288
PRUSSIAN BLUE for demonstrating lymphatic system in cadavers, 747
PSEUDOHEMOPHILIA, familial nosebleed, sign of, [Curschmann] 167—ab
PSEUDOMENINGOCOCCI, purulent meningitis due to, [Fornara] 561—ab
PSITTACOSIS, [MacLachlan & others] 72—ab; [Peterson & others] ★171; [Bortz & Green] ★400; [Rivers & others] ★577; [MacLachlan] 1454—ab
  ban on parrot imports lifted, 1514
  epidemic, French Congress of Hygiene, 1600
  etiology, virus studies, [Gordon] 302—ab
  experimental, in parrots, mice, rabbits, guinea-pigs and monkeys, [Rivers & others, ★579
  first case, in Japan, 1360
  parrots in Brazil in relation to, 876
  pathology in fatal case, [Wilson] 1946—ab
  transmission of, 205—E
  virus, neutralization with convalescent serum, [Rivers & others] ★579
PSORIASIS, action of chaulmoogra oil on skin, 363
  vulgaris, acriflavine hydrochloride intravenously for, [Sweitzer] 1942—ab
PSYCHIATRISTS, U. S. Government needs, 351
PSYCHIATRY, blood sedimentation rate in, [Petersen] 462—ab
  criminal law from standpoint of, 675
  fellowships announced by National Committee for Mental Hygiene, 1597
  fellowships at Institute for Child Guidance, 209
  in relation to crime, 346—E; [Hoffman] 681—C
  legend of prevention of mental disease, [Wechsler] ★24
  Neuropsychiatric Problem Clinic established, 1751
  problems in childhood, [Richards] ★1011
  service in criminal courts, A. M. A. resolution on, 50; 126; 346—E; [Hoffman] 681—C
PSYCHIC attitude in relation to anatomic defect, 1604
  factors in ulcerative colitis and bloody diarrhea, [Murray] 891—ab
  importance for treatment of physical, 1683
  treatment of dementia praecox by lectures, [Lazell] 1130—ab
PSYCHOANALYSIS, conference, Paris, 876
  Deutsche psychoanalytische Gesellschaft, 1520
  German scientists and physicians discuss, 1278
  of dreams of tuberculosis patients, [*Hoke*] 1629—ab
PSYCHOLOGY, child, and pediatrics, [Anderson] ★1015
  Congress of Psychopathology and Psychology, 675
  criminal law from standpoint of, 675
  fellowships at Institute for Child Guidance, 209
  Freudian, 1278
  International Congress of Individual Psychology 1362
  state of mind of an infant, 1586—ab
PSYCHONEUROSIS, bromide intoxication in, [Wagner & Bunbury] ★1725
  emotional shock effect on gastro-intestinal tract in, [Moleen] ★910
  menace of mental factors in bodily diseases, [Wholey] ★1073
  narcosis in neuro-psychiatric conditions, [Bleckwenn] ★1168
  sodium salicylate intravenously in neuro-psychiatric states, 1758
PSYCHOPATHOLOGY, Congress of, 675
PSYCHOSIS, bromide, [Andrews] 826—ab
  Korsakoff's subarachnoid hemorrhage with, [Cubitt] 1052—ab
  Manic-Depressive: See Insanity
  narcosis in, [Bleckwenn] ★1168

PSYCHOSIS—Continued
  production of sleep and rest by sodium isoamylethylbarbiturate intravenously, [Bleckwenn] 892—ab
  symptomatic changes in blood, [Schroder] 1546—ab
PSYCHOTHERAPY: See Hypnosis
PSYLLIUM, Richards Psyllium Seed, 1745
"PTOMAINE" poisoning, 36—E
PTOSIS: See Kidneys; Splanchnoptosis
PUBIS: See Symphysis Pubis
PUBLIC and medicine, South Africa, 742
  relations, conference on, of county medical societies. New York, 1271
  Welfare, department, Ontario, 1435
PUBLIC HEALTH: See Health
PUBLIC HEALTH INSTITUTE OF CHICAGO, 1266—E
PUERPERAL INFECTION, [Schwarz] 152—ab; [Rankin] 827—ab; [Murray] 1621—ab
  antigenic, 1602
  blood bilirubin in [Woskressenski] 1388—ab
  Dick test and incidence, [Stent] 163—ab
  Dick test in pregnancy and relation to, [Baird] 1996—ab
  etiology, anaerobic streptococci, [Colebrook] 896—ab; [Brown] 1453—ab
  hospital block for study of, England, 423
  infection, nature and sources of, [Taylor] 758—ab
  prophylaxis, [Miller & others] *923
  spirochetes in, [Lash] 1453—ab
  streptococcus in, specificity, [Salazar] 1301—ab
  treatment, [Dafoe] 1203—ab
PUERPERIUM: See also Puerperal Infection
  blood calcium in, [Damblé] 306—ab
  blood platelets in, [Bland] 1203—ab
  blood sedimentation test in, [Dodds] 758—ab
  broad ligament abscess after, [Brady] *338
  complications after ligating vena cava in pyemia, [Fels] 1877—ab
  complications, aorta rupture, [Böhm] 1305—ab
  complications, bacteria responsible for uterine sepsis, 1102—E
  complications, counteracting fatal hemorrhages, [Helm] 1384—ab
  complications, granuloma inguinale, [Wilson] *1093
  complications, phlegmasia alba dolens, [Ferru] 164—ab
  complications, syphilis in, 1932
  complications, thrombosis and embolism, [Wachtel] 1059—ab
  endocarditis after, 1689
  gynecologic care, [Hanna] 153—ab
  poliomyelitis immunity in, [Aycock] 1535—ab
  vital capacity in, [Alward] 1454—ab
PULSE, alternating, and cardiac insufficiency, [Wolfer] 760—ab
  anacrotic, [Laubry] 1539—ab
  rate and potassium iodide, [McEachern] 1863—ab
  rate and potency of epinephrine, 1979—E
PULVERIZATION, mortar with cellophane guard, [Pold] 1951—ab
PUNISHMENT, Capital: See Death penalty
PUPILS (of eye), Argyll Robertson, [Hall] *703
  dilatation, sign of chronic appendicitis, [Buchmann] 1212—ab
  pupillary reactions of pregnant and nonpregnant, [Bercovitz] 621—ab
PUPILS (school children): See Children, school
PURDUE UNIVERSITY, medical school mergers, *507; 535—E
PURGATIVES: See Cathartics
PURINE constituents in foods, [Stone] *712
PURPURA as acute abdominal emergency, [Bailey] 1867—ab
  bandage sign, 1110
  hemorrhagica, [Jones] 73—ab
  hemorrhagica after neoarsphenamine, [Lindsay] 966—ab
  hemorrhagica, splenectomy in, [Hirsch-Kauffmann] 1461—ab
  Henoch's, visceral, intussusception complicating, [Ballin] 158—ab
  Schönlein-Henoch's with intra-ocular hemorrhage and iritis, [Benedict] *1577
  simulating acute abdominal conditions, [Fraser] 1299—ab
  symptoma[illegible] ingococcus sepsis, [illegible]
  tourniquet [illegible] test and familial [illegible] 1382—ab
PURVES-STEWART, JAMES, 1026
PUS, containing grains pathognomonic for actinomycosis? [Eiken] 904—ab
  in Urine: See Urine, pyuria
  spleen changes in acute pyogenic infections, [Hewer] 1536—ab
PUSEY, WILLIAM ALLEN, A. M. A. medal presented to, 118
PUTREFACTION: See Intestines
PYELITIS, Bacillus *dysenteriae Sonne*, [Johnston] 967—ab
  of pregnancy: treatment, [Rossenbeck] 381—ab
  relation to achlorhydria and pernicious anemia, [Blair] 1295—ab
PYELOGNOST, intravenous urography by, [Swick] *1403
PYELOGRAM of solitary cyst of kidney, [Kreschmer] *179
PYELOGRAPHY by Iopax (Uroselectan) intravenously, 141; 609; [Swick] *1403; [Jaches] *1409; [Braasch & Bumpus] *1425; 1845
  by iopax not merbaphen intravenously, [Freudenthal] 904—ab (correction) 1706—ab
  in urethral ectopic ureter from hydronephrotic half of double kidney, [Ballenger & others] *257
PYELONEPHRITIS, [Mathé] 964—ab
PYELOSCOPY, [Jona] 627—ab
PYEMIA, puerperal, [Fels] 1877—ab
PYLORUS, spasm, after biliary tract infection, [Deaver] *1641
  spasm in infants, atropine in, 65
  Sphincter: See Sphincter
  stenosis, congenital, [Marfan] 1947—ab
  stenosis from gallstones, [Makkas] 636—ab
  surgery, gastropylorectomy for ulcers? [Hortolomei] 1212—ab
  syndrome of infants, gastric lavage in, [Zuviria] 1460—ab
PYODERMA (echthyma) ganrenosum, [Brunsting] 1533—ab
PYODERMIA treatment, irradiated substances, [Ried] 1218—ab
  treatment, phenol parenterally, [Matusis] 296—ab
PYONEPHROSIS: See Uropyonephrosis
PYORRHEA nostrum, Moore's Pyorrhea Remedy; Rector Company, 612—BI
  "the danger line," 1267—E
PYRAMIDAL TRACT, disease, ramisection in, [Symonds] 758—ab
  organic lesions involving, Oppenheim sign, [Hall] *706
PYRAMIDON, Elixir of Pyramidon, 200
  Tablets, 1½ grains, 200
PYRETHRINE, alcoholic solution as anthelmintic, 278
PYRETHRUM, anthelmintic action of, 278
  dermatitis from Black Flag [Sulzberger & Weinberg] *111
  dermatitis from Flit, [Ramirez & Eller] *1082
PYRETOTHEAPY: See Fever, therapeutic
PYREXIA: See Fever
PYRIDIUM, 34
PYRO-KIL, 612—BI
PYRO-NOX, 612—BI
PYROPHOSPHATES, toxicity, 65
PYURIA: See Urine

Q

QUACKERY: See also Nostrums
  "NOSTRUMS AND QUACKERY" placed in public libraries, 206
  poster of German Society for Combating Quackery, 1444—BI
  unqualified practice cannot be suppressed, England, 544
QUACKS: See also Cults; Eye "specialists"; Impostors; and under names of specific individuals
  exposures, South Africa, 742
  food fads and fancies and the newspapers, [Stone] *713
  number in Germany, 548
  prosecutions by Board of Medical Examiners, New Jersey, 602
  publisher of Los Angeles Times fosters propaganda of, [Stone] *714
QUARANTINE, mussel and clam, California, 734; 1510
  regulations, maritime, Turkey, 547
  regulations, uniform, 734
QUESTIONNAIRE sent to diabetics by Chicago Dietetic Supply Company, [Duffie] 1688—C
  sent to surgeons and radiologists on breast *cancer, [Trout & Peterson]* *1309; *1310
QUINCKE'S DISEASE? 684
QUINIDINE in auricular fibrillation, 1010
  sulphate, depressing effects on contractility of myocardium, [Martin] 1216—ab
QUININE: See also Malaria, treatment
  action on human uterus, [Bourne] 827—ab
  administration during Pasteur treatment, 223
  Bismuth Iodide, 797
  Campho-Quinine, 882—BI
  Casco Cascara Bromide Quinine Laxative Tablets, 883—BI
  discovery celebrated by Missouri Botanical Gardens, 419
  hydrochloride in toilet water cause of dermatitis, [Lane & Strauss] *717
  hypersensitiveness to, in shaving *lotions*, [Burgess] 691—ab
  injection in pneumonia, Aufrecht's method, 1283
  labor induced with, death of child after, [Sadler] 1869—ab
  Rapid Quinine Laxative Cold Tablets, 1606—BI
  sulphate, allergy after treatment, [Larregla] 1137—ab
  sulphate, *oxytocic action*, 682
  300 years of cinchonas in medicine, 1350—E
  treatment of lung diseases, [Mazylo] 461—ab
  [illegible] injection for internal [illegible] ab
  [illegible] 797
  [illegible] rom, 315—E; [illegible]

R

"R" form of bacteria, 1590—E
R. P. Liniment, 680—BI
RABBITS' color, and their susceptibility to *tar cancroid, [Wall]* 241—ab
  Fever: See Tularemia
  infectious myxomatosis, [Rivers] 231—ab
  psittacosis in, [Rivers & others] *577; *579
RABIES, human, and rabies vaccine encephalomyelitis, [Bassoe] 296—ab
  in Allegheny County, Pennsylvania, 136
  increased prevalence, 416—E
  public health law on, Turkey, 677
  quinine administration during Pasteur treatment, 223
  treatment, facial diplegia after, [Marque] 166—ab
  treatment, fatal neuroparalytic accident, [Stuart] 234—ab
RACES: See also Chinese; Indians; Jews; Negroes; etc.
  admixtures, blood groups, 1927
  classification of man into disease groups, 91—ab
  color problem in England, 210
  degeneration, danger of medicine producing, 1844
  improvement, 1109
RACES (athletic), avulsion of epiphysis of anterior superior spine iliac in, [Löhr] 699—ab
RACHIANESTHESIA: See Anesthesia, spinal
RACHITIS: See Rickets
RADAM'S Microbe Killer, 1365—BI
RADIANT energy, effect on skin temperatures, [Bloomfield] 161—ab
  gas heater, radiations from, [Coblentz] *412
RADIATIONS: See also Infra-Red Rays; Radium; Roentgen Rays; Ultraviolet Rays; etc.
  effect on blood cholesterol in malignant disease, [Mattick] 963—ab
  Gurvitj's Mitogenetic Rays, [Nielsen] 312—ab
  of body cavities by means of ultraviolet rays produced therein, [Westmann] 1303—ab
  sources, physical characteristics, [Coblentz] *411
RADIO, broadcasting, A. M. A. resolution on, 48; 49
  John R. Brinkley on the air, 54; 941
  noise from, in Berlin, 949
  use of hearing devices, 748
RADIOACTIVE bismuth, injection, 142
  mud, for genital pruritus, [Iribarne] 1950—ab
RADIOLOGISTS, [Hodges] *833
  questionnaire sent to, on breast cancer, [Trout & Peterson] *1310
RADIOLOGY, A. M. A. Section on: See American Medical Association
  Edward Mallinckrodt Institute of, 1511
  International Congress of Radiology, 421
  National Congress of Medical Radiology, 607
  research, institute for, 1273
RADIOGRAPHY during operation for renal calculus, [Willan] 1701—ab
RADIOTHERAPY, school of, 1437
RADIUM, gram, given to New York Skin and Cancer Hospital, 1512
  cause of death from, [Larkin] 826—ab
  centers in Great Britain, 671
  Commission's "Radium National Forms," to be used in all centers, 671
  Commission, report, England, 1437
  deposits, discovered in Russia, 674
  Emanation: See Radon
  for state use, New York, 420
  gift of, on Döderlein's birthday, 677
  in gynecology, [Forsdike] 1458—ab
  in New York hospitals, 942; 1106
  Institute, 542; 1275
  Research Foundation, Halanum, 951—BI
  Treatment: See also Breast cancer; Cancer, treatment; Esophagus cancer; Tumors, *malignant*; Uterus cancer
  treatment, excessive, secondary anemia due to, [Polayes & Lederer] *407
  treatment in dermatology, 279
  treatment of bladder cancer, [Smith] *1730; [Barrenger] *1731
  treatment of blood diseases, [Jagić] 763—ab
  treatment of epithelioma of skin, [Ward] 1621—ab
  treatment of lymphogranulomatosis, [Aubertin] 828—ab
  treatment of skull in essential hypertension, [Ayman] *247
  treatment of thyroid diseases, [Ginsburg] 1291—ab
  treatment of toxic goiter, [Loucks] 1290—ab
  treatment of uterine hemorrhage, 816
  treatment, oral appliance for, [Williams & Budd] *1424
  treatment, postponed verdict on, 1437
  water in essential hypertension, [Ayman] *247
RADIUS, cartilage and bone chipped off causing baseball pitchers' "elbow," [Kirby] *401
RADON seeds, oral appliance for, [Williams & Budd] *1424
  seeds treatment of cancer, [Souttar] 1209—ab

RAGWEED dermatitis, [Ramirez & Eller] ★1082
  Combined Pollen Allergen Solution-Squibb, 1913
  Pollen Antigen-National, 35
  pollen, circulating, disappearance after absorption from nose and throat, [Cohen & others] 293—ab; 1456—ab
RAILROAD car equipped for examination of employees, 539
  employees, medical aid for, Italy, 740
  first-aid train, 809
RAISINS, paroxysmal tachycardia an allergic disease? [Luria] 1385—ab
RALADAM Company, Marmola, 359—BI
RAMISECTION, in angina pectoris, [Danielopolu] 830—ab
  in spastic weakness, [Symonds] 758—ab
  sympathetic, results after, [Royle] 1780—ab
  sympathetic, Royle's operation, [Poate] 1210—ab
RANGOON UNIVERSITY, new medical school, 944
RAPE SEED Oil, iodized, in diagnosis of nasal sinus conditions, [Goodyear] ★1002
RAPID Quinine Laxative Cold Tablets, 1606—BI
RAPIER dueling and surgery, 216; 598—E
RAPPLEYE, WILLARD C., 1432
RATS, albino, McCollum balanced dry diet for, 1039
  immunity in pernicious anemia of, [Ford & Eliot] 73—ab
  living in dark environment, vitamin D requirement, [Musschl] 1281—C
  poisoning from rat paste, [Aikman] ★1662
  tapeworm, human infestation with, [Clark] ★1342
  typhus-like diseases, 869—E
RATTLESNAKE bite, intravenous, [Atchley] ★385
RAW Foods: See Food
"RAY GLO" radiations from, [Coblentz] ★412
RAYNAUD'S DISEASE etiology, [Rieder] 307—ab
  of upper extremities, thoracic sympathectomy cures, [Kolodny] ★1020
  sympathetic ganglionectomy in, [Lewis] 371—ab
  sympathetic ramisection in, [Royle] 1780—ab
  with paroxysmal hemoglobinuria, [Bywater] 1458—ab
RAYON, sensitivity to, [Ramirez & Eller] ★1082
REAGENT for demonstrating fungi in skin scrapings and hair, [Cornbleet] ★1743
  proprietary: Albutesta, 1347
RECIPROCITY: See Licensure
RECKLINGHAUSEN'S DISEASE: See Osteitis fibrosa
RECORDS, clinical, "Radium National Forms" for, 671
  health record book, 1848
RECRUITS: See Army
RECTOR COMPANY declared a fraud, 612—BI
RECTUM: See also Anus
  Austin's Irrigators, 343
  cancer, abdominoperineal operation for, [Jones] ★1172
  cancer, blood in feces, 1691
  cancer, radical operation for, [Dannheisser] 1138—ab
  cancer, treatment, [Binkley] ★1971
  diseases, common, diagnosis, [Campbell] 154—ab
  diseases, sigmoidoscopy vs. x-rays in diagnosis, [Yeomans] ★1907
  diathermy in precancerous polyps, early cancer, and in simple and tuberculous ulcer, [Soper] 299—ab
  effects of soap suds enemas on, 1608
  ether given by, in whooping cough, [McGee] 966—ab
  hemorrhage, injuries from thermometers, [Windfeld] 458—ab
RECTUS ABDOMINIS: See Muscle
RECURRENT FEVER: See Relapsing Fever
RED CAPS, 1194—BI
RED CROSS, American, activities, 1597
  British, 1515
REDLICH, E., death, 676
REDUCING: See Obesity, treatment
REFLEX, abdominal, loss of, [Hall] ★703
  conditioned, and pharmacology, 415—E
  disturbances from violent central nervous system disorders, 1604
  hyperalgesia, cutaneous, [Jersild] 1464—ab
  in decapitated dog after joining head and keeping up artificial circulation and breathing, 1519
  in meningitis, 953
  nasal, Asuero arrested in Argentina, 547
  plantar, Babinski, [Hall] ★704; 953; [Juarros] 1137—ab
  plantar, Babinski, when inner side of plantar surface has been irritated, the toes remain in neutral position? 1609
  [illegible] 'n angina pectoris,
  [illegible] disease, [López] 306—ab
  symptomatology in mitral stenosis, [Doumer] 971—ab
REFRACTION and ocular neuroses, [Derby] ★913
REFRACTOMETER, prism, 1117
REFRACTURE: See Fracture
REFUSE disposal, Beccari method, 948
REGENERATION: See Nerve; Nervous System
REGISTRATION area, maternal mortality in, 1923
  health commissioners have new duty, Ohio, 1107
[illegible] 'isabled, [Mock] ★31
[illegible] 282
[illegible] e Ureter
[illegible] berculosis
[illegible] ilar grafting, 203—E; [Thorek] 550—C
[illegible] central Texas, [Weller
RELIGION: See also Church; Clergymen
  influence on crime in modern society, 808
RENO'S Antiseptic Wash, 1281—BI
REPRODUCTION, cycle effect on sense of moral responsibility of women, 1442
  ergosterol overdosage effect on, [Centanni] 1783—ab
  excess protein in diet and, 1673—E
  sodium aluminum sulphate baking powder effect on, [Lyman] 753—ab
RESEARCH: See also Animal Experimentation; Cancer; Medical Research Council; National Research Council; etc.
  clinic for tumors, 1812
  experimental method in modern medicine, [Babkin] 1376—ab
  Institute for Medical Research, Heidelberg, 141
  medical, Beit fellowships for, 672
  Michigan Research Clinic closed, 601
  ownership of scientific discoveries, 211; 213; 276; 484; 543
  university, correlation, [Holloway] ★463
  vision which belongs to the pioneer, 1645—ab
  workers, exchange between Germany and Japan, 426
RESIDENCE, rights of physicians in choice of, 1035
RESIDENCIES, hospitals approved for, in specialties, 289
RESISTANCE: See Disease; Infection
RESORCINOL, acute intoxication from external use, [Klem] 1306—ab
  intracutaneous reaction to, in early diagnosis of phthisis [Marcialis] 1137—ab
  test, Vernes, and tuberculosis, [Ralph] 451—ab
RESORPTION: See Absorption; Bone
RESORTS: See also Health resorts
  summer, inspection Michigan, report, 349
RESPIRATION: See also Dyspnea; Vital Capacity
  Artificial: See also Respirator; Resuscitation
  artificial, successful mouth to mouth insufflation, [Emmert] 368—ab; [Flagg] 446—ab
  center in medulla, [Chopra] 1053—ab
  changes after phrenicectomy, [Werner] ★1162
  Cheyne-Stokes, histamine modifies, [Kisch] 1874—ab
  cog wheel breathing, [Hebert] 1458—ab
  effect on digestive organs [Pron] 155—ab
  expiration sign in pleurisy, 427
  failure, postoperative, Drinker respirator for, [Drinker & others] ★1251
  hypoventilation, postoperative, [Overholt] ★1484
  in atmosphere of oxygen, 875
  in execution by hydrocyanic acid gas, [Hamer] ★661
  in sword swallowers, 139
  overbreathing cause of tetany [Lawrence] 1131—ab
  redistribution after hemidiaphragm paralysis, [Head] 299—ab
  signs in neoplastic and other lung diseases, [Jackson] ★639
  thoracoplasty effect on, [Feiermann] 307—ab
  velocity, pneumotachograph to register, [Hochrein] 83—ab
RESPIRATOR, Drinker, [Murphy & Coyne] ★335; [Drinker & others] ★1249
  to be installed in 10 hospitals, Pennsylvania, 1513
RESPIRATORY QUOTIENT: See under Metabolism
RESPIRATORY TRACT: See also Bronchus; Lungs; Thorax; etc.
  complications, postoperative, [Aikenhead] 1621—ab
  Disease: See also Bronchopneumonia; Colds; Influenza; Pneumonia; Pneumoconiosis; Tuberculosis, Pulmonary; etc.
  disease, in wage wearners, 1274
  disease, J. H. Paul to remain in Spitzbergen to study, 871
  disease nostrum, Deo Dennis Eucalyptus Ointment, 430—BI
  foreign bodies from toys in, in children, A. M. A. resolution on, (vol. 94) 2073; 1103
  infections, high fat feeding in, [Higgins] 826—ab
  infections, investigated at Rockefeller Institute, 942
  infections, recurrent, in childhood, [McLean] ★1338
  infections, treatment, [Spector] ★789
RESPIRATORY TRACT—Continued
  infections, treatment by counterirritants, 67
  roentgenology of upper, [Pancoast] ★1318
RESPONSIBILITY of cities with regard to drinking water, 139; 278
REST, production in psychosis, [Bleckwenn] 892—ab
  prolonged, metabolism during, 37—E
RESUSCITATION: See also Heart, injections into; Respiration, artificial
  Davis Inhalator acceptable, 200
  of drowned persons, [Thiel] 377—ab
  mouth-to-mouth breathing in, [Emmert] 368—ab; [Flagg] 446—ab
RETICULOCYTES, chemical composition, [Kay] 452—ab
  in blood, how to determine, 1117
  in pernicious anemia, 1348—E
  reaction in anemia, [Wahlberg] 1140—ab
  response, [Mettier & others] ★1090
RETICULO-ENDOTHELIAL SYSTEM, rôle in tuberculosis treatment, [Wedekind] 378—ab
  siderosis, [Bohrod] 1205—ab
RETINA, abnormal phenomena in Bell's palsy, [Riddell] 1618—ab
  angiomatosis, [Moller] 382—ab
  changes in renal disorders, [Urwyler] 697—ab
  detachment, Gonin's operation for, [Knapp] 1949—ab
  detachment in chronic anterior uveitis, [Beigelman] ★1659
  vascular changes in hypertension, [Wagener] 1454—ab
RETINITIS, diabetic, blood calcium in, [Lawrence] 1701—ab
RHEUMA-RX, 814—BI
RHEUMATIC FEVER, acute, blood cultures in, 417—E
  Adams-Stokes' syndrome in, [Faulkner] 450—ab
  before and after tonsillectomy, [Robey] 79—ab; [Kaiser] ★838
  investigated at Rockefeller Institute, 942
  medical inspection of schools, Cape Province, South Africa, 1440
  modern conception, [Cecil] 1378—ab
  peritoneal syndromes in, [Worms] 235—ab
  subcutaneous nodules in, [Dawson & Boots] ★1894
  treatment, antistreptococcus serum, [Hitchcock] 1531—ab
  treatment, biologic products of Streptococcus cardioarthritidis, [Small] 1048—ab
  treatment, salicylate, vs. auriculoventricular conduction time, [Wyckoff] 443—ab
  treatment, Sulphocol and Sulphocol Sol, 594
RHEUMATISM: See also Arthritis
  acute articular, salicylates in, [Motzfeldt] 382—ab
  acute articular, treatment, [Lutenbacher] 376—ab
  acute articular, vaccinotherapy, [Loeper] 1947—ab
  acute idiopathic myocarditis, [Étienne] 81—ab
  acute, urine sediment count in, [Goldring] 449—ab
  articular, etiology, [Risak] 1705—ab
  cardiac complications, coronary arteries in, [Perry] 302—ab
  cardiac disease, edema of, Southey's tubes for, [Bland & White] ★1489
  cardiac disease in obstetric patient, [Herrmann & King] ★1472
  cardiac disease, statistics, [Reid] ★1468; (discussion) 1476
  carditis, before and after tonsillectomy, [Kaiser] ★838
  chronic, American Committee for the Control of Rheumatism concept of, [Osgood] ★994
  chronic, autoserotherapy, [le Floch] 1212—ab
  chronic, blood calcium in, [Bastos] 1543—ab
  chronic, orthopedic aspects, [Osgood] ★992
  conditions in animals and men, [Wester] 1464—ab
  differential diagnosis of osteoarthritis and, [Dawson] 1048—ab
  flatfoot, [Saxl] 1387—ab
  in children, Dawson Williams Prize to Dr. Frederick J. Poynton for work on, 671
  in children, etiology, [Hill] 1458—ab
  in children, family incidence, [Hill] 80—ab
  in children, treatment, [Hill] 452—ab
  in childhood, [Sheldon] 1298—ab
  infection, indexes of, [Ernstene] 444—ab
  investigation of cases, [Fox] 1464—ab
  iritis due to tuberculosis, [Verhoeff] ★583
  kidney function in, [Gottlieb] 461—ab
  lung lesions in, [Findlay] 1131—ab
  manifestations, salicylates in prevention of, [Leech] ★932
  nosebleed and vomiting in, [Levine] 1865—ab
  nodosis rheumatica, [Strauss] 900—ab
  nostrum, Nue-Ovo, 680—BI
  nostrum of J. Knapp, 669
  nostrum, Phenyo-Caffein, 952—BI
  nostrum, Rheuma-Rx, 814—BI
  pericarditis with polypoid formations, [Bohrod] 755—ab
  skin circulatory disorders in, [van Breemen] 1790—ab
  treatment, cost, 948
  treatment in winter by baths, [Fox] 233—ab

RHEUMATISM—Continued
  treatment, infra-red rays, [van Breeman] 381—ab
  treatment, specific vaccine, [Crowe] 1048—ab
RHINITIS, atrophic, iodized oil in diagnosis, [Goodyear] *1002
  atrophic, physical therapy, [Sputh] 297—ab
  Vasomotor: See Hay Fever
RHINOLOGY, Section on: See under A. M. A.
  Congress of Italian Society; 1029
RHINOPHARYNX, daily hygienic care, 1600
RHINOSCLEROMA, [Elbert] 970—ab
RHODAN calcium-diuretin in essential hypertension, [Ayman] *247
RHUS antigen for ivy poisoning, 1691
  benzoyl peroxide for poison ivy intoxication, [Lamson] *663; [Stevens] 1762—C
  poisoning nostrum of Dr. B. J. Cline, 1688—BI
  recurrent dermatitis not due to magnesium sulphate, probably to, 1447
RIBERI PRIZE: See Prizes
RIBS, clinical sign in pleurisy, 427
  removal, partial, in empyema, [Douglas] 158—ab
  sarcoma, spindle cell, [Miskolczy] 699—ab
RICE, Heinz Rice Flakes, 485
RICHARDS Psyllium Seed, 1745
  sign, 550
RICHARDSON, R. A., food faddist, 348
RICHET, Professor, delivered eulogy on Marey, 544
RICINOLEATE: See Sodium ricinoleate
RICKETS: See also Vitamin A; Vitamin D
  an avitaminosis? [Pfaundler] 636—ab
  calcium and phosphorus absorption in, [Peola] 1541—ab
  growth of bone and development of, [Mitchell & Nelson] *1896
  hormone influence in, [Kay] 1049—ab
  in infants in New Orleans, [Crawford] 1619—ab
  in school children, South Africa, 1440
  incipient dietary deficiency in child, 1759
  intra-uterine, [Inglis] *1262
  prevention, antirachitic activation a panacea for negative calcium balances? [Steenbock] 160—ab
  prevention; cod liver oil vs. viosterol, [Holmes] 895—ab
  prevention, ergosterol activated with roentgen rays, [Brummer] 763—ab
  prevention, irradiated cow's milk or exposure of cow to sunlight and .ultraviolet rays, [Steenbock] 160—ab
  prevention, irradiated milk for nursing mothers, [Scheer] 1629—ab
  prevention, priority as to discovery of Steenbock process of antirachitic activation, [Steenbock] 220—C
  prevention, "sugared condensed milk," [Baake] 698—ab; (correction) 904—ab
  prevention, viosterol dosage, [Hess & others] *316
  prevention, viosterol, excess, pathologic effects, [Shohl] 449—ab
  prevention, White's Cod Liver Oil Concentrate, 663
  renal, 116—E; [Swart] 1779—ab
  treatment, calcium therapy during childhood, [Ochsenius] 379—ab
  treatment, phosphorus, [Compere] 1995—ab
  treatment, viosterol dosage, [Hess & others] *316
  treatment, viosterol in, [Mussehl] 1281—C; 1593—C
  treatment, viosterol, increased potency, 1021; 1023—E
  treatment, viosterol, toxicity, [Garelly] 1301—ab
  vitamin D and, 38—E
RIGHT-HANDEDNESS and right-eyedness, [Quinan] 623—ab
RINGER'S SOLUTION, [Lutembacher] 376—ab; 936—E; [Ribadeau-Dumas] 1055—ab
RINGWORM, dermatophytid complicating Tinea cruris, [Williams] 1533—ab
  of feet, treatment, 433
  of nails, 1198
  of scalp, epidemic in boarding school, 876
  of scalp in children, thallium acetate epilation in, [Mateos] 698—ab
RIVANOL, effect on Monilia tropicalis, [Lim] 629—ab
ROAD: See Street
ROBERT JONES LECTURE in orthopedics, 804
ROBINETTE Foundation: See Foundations
ROBISON National Clearing Company, Inc., 1853—BI
ROCH'S reagent, Albutesta, 1347
ROCKEFELLER Foundation: See Foundations
  gives buildings to Kaiser Wilhelm-Gesellschaft, 676
  gives Institute to India, 1514
  Institute for Medical Research, diseases investigated at, 942
ROCKS, iodine in, 276
ROENTGEN RAYS: See also Radiology; Radiotherapy; etc.
  American Roentgen Ray Society, 209
  amyloidosis of brain caused by, [Fischer] 1952—ab
  apparatus, double-disk and valve-tube rectification in, 1197
ROENTGEN RAYS—Continued
  apparatus, huge customs duty imposed on, 425
  danger to employees working in the room below? 747
  dangers in use of, 1691
  Diagnosis: See also under Aortitis; Ascariasis; Hernia; Intestines; etc.
  diagnosis of synovial adhesions by disodium salt of tetraiodo-orthosulphobenzoic acid, 1749—E
  diagnosis of syphilitic aortitis, [Steel] 440—ab
  diagnosis vs. sigmoidoscopy, [Yeomans] *1907
  effect on blood pressure, [Pausdorf] 1953—ab
  effect on callus formation, [Fukase] 241—ab
  effect on healing of fracture, [Schneller] 813 ab
  effect on permeability of normal and cancer cells, [Magat] 1630—ab
  effects on heart and blood, 1198
  effects relation to dietary, [Jorstad] 757—ab
  epilation in hypertrichosis, [Hoede] 763—ab
  examination of paranasal sinuses and mastoids, [Granger] *1332
  fellowship, Sealy-Smith Foundation, 943
  fetal cephalometry in utero, [Thoms] *21
  fluoroscopic studies of heart and aorta, [Kurts & Eyster] 440—ab
  German Roentgen Society, 141
  hero, Dr. Christian Deetjen, 1185
  hospital department, standardization, [Hodges] *833
  injuries, [Lossen] 1385—ab
  injuries, more Tricho cases, [Lane] 286—C
  irradiated substances in surgical conditions, [Ried] 1218—ab
  irradiation, exclusion of kidney by, [Halbfas-Ney] 1706—ab
  irradiation of ergosterol, [Brummer] 763—ab
  irradiation of long bones in agranulocytosis, [Roberts & Kracke] *780
  irradiation of pelvis in child-bearing woman, [Findley] *857
  irradiation of spleen in congenital anemia, [Vogt] 446—ab
  irradiation of spleen in myeloid leukemia, [Rikl] 902—ab
  irradiation of suprarenal region in essential hypertension, [Ayman] *247
  irradiation, rodent ulcer from, [Edwards] 968—ab
  Maltese X-Ray Lead Glass, 865
  martyr, E. H. Harnack, 1110
  monument to, 209
  photography of skull, [Christiansen] 904—ab
  "scout" plate in intestinal obstruction, [Smithies] *1899
  sensibility of lymphosarcomas, [Krebs] 462—ab
  speech film, 873
  sterility, 683; 1284
  teleroentgenogram in early syphilis, [Maynard & Ingraham] 441—ab
  Treatment: See Roentgenotherapy
  work done by interns in hospitals, *516; 535—E
ROENTGENKINEMATOGRAPHIC photographs, 217
ROENTGENOGRAM of fetal head in utero, [Thoms] *22
ROENTGENOGRAPHY, accident in swallowing capsules of tetiothalein sodium, [Heuser] 1058—ab
  significance of gas under diaphragm, [Jenkinson] 1775—ab
ROENTGENOLOGIST, encephalography as he should understand it, [Pancoast] 826—ab
ROENTGENOLOGY of upper respiratory tract, [Pancoast] *1318
ROENTGENOTHERAPY: See also Angina; Breast cancer; Goiter; Goiter, Exophthalmic; Leukemia; Myeloid; Tonsils, enlarged; Tumors, malignant; Uterus, cancer
  dosage, small, for cancer, [Miescher] 309—ab
  excessive, secondary anemia due to, [Polayes & Lederer] *408
  in dermatology, 279
  irritation-therapy in gynecology, [Seitz] 1705—ab
  of boils, [Leddy] 894—ab
  of carbuncles, [Leddy] 894—ab; [Light] 1296—ab
  of chronic eczema, 955
  of chronic encephalitis, [Trautmann] 1302—ab
  of erysipelas, [Ude & Platou] *1
  of hemopathies, 608
  of pituitary tumors, [Nystrom] 638—ab
  of xanthomatosis, [Sosman] 445—ab
  sarcoma following, [Backlund] 1140—ab
ROGER HENRI, retires, 424
ROGER'S Lacquer, intoxication from, 289
ROGERS, JENNIE M. T., 1931—BI
ROGERS, L. D., 1116—BI
ROLLER, grooved, to prevent loss of life in auto accidents, 1845
ROMAN Catholic Church on abortion, 1191
  Catholic church on birth control condemned, 1516
  Empire, medical teaching in, 182—ab
ROMBERG SIGN, [Hall] *703
RONGETTI, AMANTE, 668; 1452
ROSENOW, EDWARD C., address on selective localization of streptococci, 1438
ROSENWALD FUND: See Foundations
ROSEOLA, production, rôle of typhoid allergy in, [Delalande] 455—ab
ROSS, RONALD, 1030
ROTOGRAVURE section, dermatitis from, [Ramirez & Eller] *1082
ROUGE for lips, 739
ROUMANIAN Congress of Otorhinolaryngology, 737
ROUND LIGAMENTS, shortening for uterine prolapse, [Counseller & Stacy] *985
ROUNDWORMS: See Ascaris lumbricoides
ROUS gradient of capillary permeability, 938—E
  Sarcoma: See Sarcoma
ROYAL COLLEGE OF SURGEONS, museum, 277
  primary fellowship examination; ethics; fees, 1517
ROYLE'S operation of sympathetic ramisection, [Poate] 1210—ab
RUBBER flask connectors for hypodermoclysis, [Pottenger] *1503
  goods factory, benzene poisoning in, 215
RUBELLA, atypical form, [Finkelstein] 698—ab
RUBEOLA: See Measles
RUBIN TEST, 1931
RUNNER, avulsion of epiphysis of anterior superior spine iliac in, [Löhr] 699—ab
  long-distance, efficiency of human muscles, 799—E
RURAL COMMUNITIES, Congress of Rural Hygiene, 949
  health experiment in China, 1436
  health project, Commonwealth Fund selects site for, 1105
  health service, 943
  medical care in, [Irons] *245
  milk-borne epidemics in, 1598
  obstetrics in, [Peck] 1996—ab
  physicians for, Canada, 1435
  syphilis in, 871
RUSBY, H. H., Ambruster—and ergot, *722; 730—E
  ephedrine and habit formation, 731—E
RUSH Medical College, Billings fellowships, 136
RUSSIA, care of mothers and children, 1192
  radium deposits discovered in, 674
RYE bread, endemic ergotism, [Kaunitz] 157—ab
RY-KRISP, 486

S

"S" form of bacteria, 1590—E
S. M. A., mineral values, [Weston] *835
S. R. REACTION, in syphilis, [Sciarra] 378—ab
SACCO, 951—BI
SACROILIAC Strain: See Medicolegal Abstracts at end of letter M
SACRUM, chordoma, metastases, [Willis] 1946—ab
SAFETY, Annual Safety Congress, 805
  "seal of safety" campaign, 804
ST. LOUIS College of Physicians and Surgeons, no longer recognized, *504; 535—E
SALAMI, cause of trichinosis, 40—E
SALICYLATES: See also Acid, acetylsalicylic, sulphosalicylic
  bismuth, excretion, [Hanzlik] 1533—ab
  mercuric, in oil, injection, local arterial embolism after, [Skolnik & Nomland] *1742
  methyl, poisoning in children, [Aikman] *1662
  physostigmine, to regulate anesthesia, [Garrelon] 1948—ab
  sodium, action on acute infectious diseases, 425
  sodium, intravenous therapy, 1284
  sodium, intravenously in neuropsychopathic states, 1758
  sodium, solution causes varicose veins slough, [Kilbourne] *787
  treatment of acute articular rheumatism; [Lutembacher] 376—ab; [Motzfeldt] 382—ab
  treatment vs. auriculoventricular conduction time, [Wyckoff] 443—ab
  value in prevention of rheumatic manifestations, [Leech] *932
SALIVA, urea in, [Larregla] 1460—ab
SALIVARY GLANDS, mixed tumors, [Patey] 1868—ab
SALMONELLA, Gärtner-like, of type Dublin, continued fever, [Smith] 162—ab
  type Dublin, infection to, [Souper] 1131—ab
SALPINGITIS: See Fallopian Tube inflammation
SALT: See also Sodium Chloride
  diet, low, in essential hypertension, [Ayman] *247
  free diet effect on gastric juice secretion, [Elmer] 900—ab; [Cohen] 1785—ab
  free diet in lipoid nephrosis, [Lemierre] 971—ab
  free diet in tuberculosis, [Alexander] 713; 829—ab; [Herrmannsdorfer] 977—ab
  free diet, substitute for salt in, 684
  in diet, [Stone] *712
  Iodized: See Iodized Salt
  Mosso's Oil of Salt, 1280—BI
  solution by hypodermoclysis, 1525
  solution for cerebral dehydration, 1029
  solution in shock from intravenous rattlesnake bite, [Atchley] *285

SALT—Continued
  solution, use in medical shock, [Atchley] *385
  solution, value in intestinal obstruction, 414—E
  test, intradermal, in fever, [Duden] 449—ab
SAMONTE, DAMASO TUMANENG, diploma lost, 871
SAMPSON, PAUL O., 144—BI; 348; 735
SAN JOAQUIN Valley disease, 667—E
SANATORIUM: See also Tuberculosis
  for variety artists, 1842
  treatment of asthma, etc., [Stewart] 294—ab
SAND FLY cause of allergic coryza and asthma, [Parlato] 558—ab
SANDALWOOD, prescription of Copernicus, 1114
SANITARY PAD, use of cotton tampon during menstruation in place of, 747
SANITATION: See also Hygiene
  conditions, Belgium, 140
  of soda fountains, Maryland, 1105
SANOVAPOR, 1365—BI
SAPONIN in Slends Chewing Gum, *723; 730—E
SARATOGA Springs Mineral Waters, 735
SARCOMA: See also Lymphosarcoma; under specific organs as Bones; Breast; Conjunctiva; Lungs; Seminal Vesicles; Stomach; Uterus; etc.
  after roentgenography of joints, [Backlund] 1140—ab
  alveolar, of kidney, [Uluhogian] 698—ab
  generalized osteitis deformans (Paget) with, [Genner] 1878—ab
  growth, vs. epinephrine, [Sugiura] 1864—ab
  growth vs. high fat diets, [Sugiura] 298—ab
  melanotic, pigmented mole of sole of foot resulting in, [Kurtz] *1586
  metastases in cauda equina, [Miskolczy] 699—ab
  of testis in identical twins, [Champlin] *96
  osteogenic, of humerus, [Morton] 1293—ab
  racemose, of vaginia with metastases in lung, [Dugge] 241—ab
  Rous, blood changes in, [Sadi] 1788—ab
  scalpel surgery for, [Mackee & Stone] *1317
  suprarenal cortex and, [Woglom] *473
  trauma and, [Willan] 1868—ab
SARGON, posthumous testimonial by James R. Kimber regarding, 285—BI
SAUSAGE, green rings in, 682
SAVE for sickness, A. M. A. resolution on, 50
SAVODINE, 431—BI
SCALP, ringworm in boarding school, 876
  ringworm, thallium acetate in epilation treatment, [Mateos] 698—ab
  syphilids, corymbose, [Sabouraud] 236—ab
  tumor, mixed, [Erb] 1138—ab
SCALPEL surgery in dermatology, [MacKee & Stone] *1315
SCANZONI maneuver, 883
SCAPHOID BONE, carpal fracture, [Harild] 832—ab
  tarsal navicular, Kohler's disease, [Phemister & others] *995
SCAPULA, tuberculosis, [Ponzi] 760—ab
SCAR: See Cicatrix
SCARLET FEVER, antitoxic serum in, [Toyoda] 1458—ab
  before and after tonsillectomy, [Kaiser] *838
  complication, endocarditis, [Zischinsky] 377—ab
  complication, gangrene, [Sutherland] 452—ab
  diagnosis, differential, "stomach rash" given in, 885
  diagnosis, exfoliative dermatitis or scarlet fever, 1932
  diagnosis in Negro, 1689
  Dick method of serotherapy and prophylaxis, 878
  Dick test, 673; [Coste] 1623—ab
  Dick test in instutions, protective value, 362
  Dick test vs. puerperal infections, [Stent] 163—ab; [Baird] 1996—ab
  disability in, 1521
  etiology, 673
  immunization, antigen utilizable in, 673
  immunization, value, [Schottmüller] 1138—ab
  patients, convalescent, hemolytic streptococci from, [Kirkbirde] 964—ab
  patients, cultures of liquid filtrates derived from, 673
  prevention, [Gilkey] 150—ab; 673
  rare in tropics, 664—E
  regulations regarding, Prussia, 743
  second attacks, [Gabriel] 377—ab
  serum effect on complications of disease, [Kanevsky] 637—ab
  sore throat relation to, [Riskin] 637—ab
  streptococcus in, specificity, [Salazar] 1301—ab
  susceptibility to, 664—E
  therapeutic effect on preexisting epilepsy, [Guthrie] 1534—ab
  treatment, [Gilkey] 150—ab; 673
  treatment, attempt to reintroduce viper as medicament, 212
  treatment, serum, [Wylie] 1297—ab
  treatment, transfusion, [Landon] 1531—ab
SCARLET RED, *Ointment Scarlet Red Biebrich 8 per cent, 1745*
SCHARLIEB, MARY, death, 1924
SCHAUFFLER, GOODRICH C., 1028
SCHIASSI method for gastric ulcer, [Adreani] 761—ab
SCHICK TEST: See also Diphtheria
  effect of diseases other than diphtheria on, [Eddy] 1995—ab
SCHICKERLING Ultraviolet Sun Bath Lamp, [Coblentz] *411; 954
SCHIEFFELIN Cold and Grippe Tablets, 1038—BI
SCHILLING Blood Count: See Blood Count
  formulas in exanthematic diseases and diphtheria, [Nervi] 1383—ab
  hemogram in health and in disease, [Gazzotti] 1056—ab
SCHIZOPHRENIA: See Dementia Praecox
SCHIZOTHYMIC temperament, 1576—ab
SCHLATTER'S DISEASE, [Lupen] 1214—ab
SCHLESINGER'S TEST in biliary atresia, [Baastrup] 764—ab
SCHMIDT, EDWARD L., 1751
SCHMIDT-OTT honored on 70th birthday, 217
SCHÖNLEIN-Henoch's Purpura: See Purpura
SCHOLARSHIPS: See also Fellowships; Loan Funds
  Albert Blum, 1190
  for graduate work by National University of Buenos Aires, 1817
  tuberculosis scholarship tour, 1107
SCHOOLS: See also Children, school; Education; Students; Teachers; University; etc.
  boarding, epidemic of ringworm of scalp, 876
  calendar, proposed changes in Italy, 917
  children's hospital, unit of state tuberculosis sanatorium, 1028
  drinking customs in, crusade against, 610
  medical inspection, Cape Province, South Africa, 1440
  of child training, founded, Paris, 212
  Princess Alice School of Recovery at the Cape, 1440
  summer health, California, 802
SCHOOLS, MEDICAL: See also Education, Medical; Faculty of Medicine; Graduates; Professors; Students, Medical; University; and under names of specific schools
  Association of American Medical Colleges, 531; 873
  British, American students in, 57
  British Postgraduate Hospital and Medical School, 605
  Chinese, need scientific specimens, 877
  Class A., A. M. A. Reference Committee on Medical Education report, 41
  college work required, *487; 535—E
  cooperation between college and, [Hawkes] 159—ab
  description, *525; 535—E
  entrance credentials, analysis, [Zapffe] 755—ab
  entrance requirements, *531
  entrance requirements raised at University of Michigan, 1027
  fees, 1930-1931, *506; 535—E
  fewer but better, in United States, *507; 535—E
  for native negroes in Madagascar, 739
  for negroes, Meharry Medical College, 1028
  for negroes, why not similar schools for the caucasian as Meharry, [Pusey] 746—C
  foreign, new appointments in, 136
  graduate, Hammersmith Hospital, 276
  "honors," St. Mary's Hospital, 1358
  hospital intern year required by, *523, 535—E
  in Canada, description, *532, 535—E
  institutions no longer recognized as, *504; 535—E
  life chart of, *507; *509; 535—E
  mergers, special instances, *507; 535—E
  National Board examination, acceptance by, [Bierring] 1376—ab
  new, in Burma at Rangoon University, 944
  number, *504; 535—E
  organized prior to 1825, *511; 535—E
  pharmacology and, [Edmunds] *383; 801—E
  place of, [Fletcher] *1392
  representation at U. S. Pharmacopeial convention, [Hirschfelder] 220—C
  School of Radiotherapy, 1437
  School of Tropical Medicine, Belgium, 354
  School of Tropical Medicine, Sydney, 56
  statistics, *499; 500; 535—E
  students admitted to, *498; 535—E
  students and graduates, *504; 535—E
  training school for reserve officers, 1105
DE SCHWEINITZ, GEORGE EDMUND, A. M. *A. medal presented to, 118*
SCIATICA, Lasègue's sign in, [Hall] *706
  nostrum, Dr. Cline's prescription No. 3, 1688—BI
SCIENCE: See also Research
  comradeship in, [Hill] *1395
  fundamental, development, [Fletcher] *1391
  medicine and, 1253—ab
  merger for promotion of, Germany, 1761
  National Academy of Sciences, 1029
  national fund for promotion, France, 1758
  perfectly certain knowledge, 266—ab
  Publishing Company, Inc., 814—BI
  recognizing possibilities of error, 1741—ab
  thinking revolutionized by, 1824—ab
SCIENCE—Continued
  university adjustment to advance of, [Fletcher] *1389
  unusual mental honesty, 1896—ab
SCIENTIFIC Crime Detection Laboratory, 668
  discoveries, patenting, 211; 213; 276; 484; 543
  Exhibit: See A. M. A.
SCIENTIST, 568—ab
  character training and, 343—ab
  Creed, [Hill] *1397
  German, annual meeting, 1277; 1442
SCLAVO, ACHILLE, death, 608
SCLEREMA neonatorum, [Chen] 1538—ab
SCLERODERMA, [O'Leary] 445—ab
  abortive form, [Steinitz] 562—ab
  action of chaulmoogra oil on skin, 363
SCLEROSIS: See also Arteriosclerosis; Liver cirrhosis
  amyotrophic lateral, in encephalitis, [Ornsteen] 1535—ab
  changes in aortic valve, [Drake] 1026—ab
  disseminated, 748
  multiple, fever and leukocytosis in, [McKenna] 1292—ab
  multiple, hemolytic serotherapy, [Koreslos] 975—ab
  multiple, hot baths for, [Lindemulder] 825—ab
  multiple, malariotherapy, [Dreyfus] 633—ab
  multiple, protein therapy, [Miller] *466
  primary, postarsphenamine dermatitis, [Robinson] 966—ab
  pulmonary, in miners, 1033
  subacute combined, [Delehanty] 230—ab
  Therapeutic: See Varicose Veins, treatment
SCOLIOSIS: See Spine curvature
SCOPOLAMINE, effect of sympathetic stimulation on leukocyte count, 807
  in Parkinsonian disease, 1283
  in postencencephalitic syndrome, [Jacobson] 1047—ab
SCREENED bed, hazard from lid of, [Millikan] 816—C
SCREWS for fixation of femur fractures, *[Bloch] 1624—ab*
SCRIPPS Clinic Lectures, 1510
SCROTUM, elephantiasis, [Starna] 899—ab
  emphysema, [Schüller] 311—ab
SCURVY: See also Vitamin C
  anemia of, [Mettler & others] *1090
  effect of diet of milk on guinea-pig nurslings, [Bilek] 1628—ab
  *in adults, [Gichner & Sherry] *9;* [Mettler & others] *1089
  incipient dietary deficiency in child, 1759
SDRODOWSKI modification of Abderhalden test, [Segre] 1625—ab
SEA: See also Marine; Navy; Ships
  port, maritime quarantine regulations, Turkey, 547
  voyage and allergy, [Beckman] *1582
SEAFOOD: See Lobster; Mussels; Oysters
SEALS: See Emblems
SEALY-Smith Foundation: See Foundation
SEAMEN, Conference on Venereal Disease among, 135
  prophylaxis of venereal disease among, 355
SEASICKNESS, sodium nitrite on, [Lebensohn] 1455—ab
SEASIDE for disorders of ear, 280
  Research Institute, Japan, 425
  resorts, therapeutic advantages, 1928
SEASONS: See also Weather
  variations in intestines flora, [Goldwasser] 1456—ab
SEBORRHEA dermatitis, staphylococcus toxin in, [Weise] *324; [Greenbaum & Harkins] 815—C; [Weise] 1607—C
SECRETARIES: See Societies
SECRETIONS: See also Pancreas; Stomach
  physical signs in neoplastic and other lung diseases, [Jackson] *639
SECTION technic, frozen, [Moss] 627—ab
SECTIONS of the A. M. A. See under American Medical Association
SEDATIVE, alcohol in therapeutics, 672
SEDIMENTATION TEST: See Blood
SELECTAN NEUTRAL: See Iopax
SELENIUM plus lead for cancer, [Todd] 1298—ab
SEMIANESTHESIA from phenobarbital, [Bartlett] 1051—ab
SEMILUNAR BONE, carpal, Kienbock's disease, [Phemister & others] *995
SEMILUNAR CARTILAGES: See Knee
SEMINAL VESICLES, sarcoma with metastases, [Junghanns] 1058—ab
SENATE (U.S.): See Congress (U.S.)
SENILITY: See Old Age
SENSATIONS, disorders after kidney surgery, [Huggins & Bucy] *652
  disturbances, in spinal cord tumors, [Woltman] *1399
  of comfort and skin temperature, [Ward] 753—ab
SENSES: See Hearing; Taste; Vision; etc.
SEPTICEMIA: See *also Bacillemia;* Bacteremia; Pyemia
  Bacillus pyocaneus, [Askey] 297—ab
  in relation to vaccination, [Grey] 453—ab

SEPTICEMIA—*Continued*
  infection due to salmonella type Dublin, [Souper] 1131—ab
  meningococcal, in child, [Raillet] 1870—ab
  meningococcal, in nursling, [Blanco] 1873—ab
  treatment transfusion, [Landon] 1531—ab
  [illegible] ★1175
  [illegible] also Pregnancy; etc.
  hazard, [illegible]
  [illegible] physical sign in,
  [illegible] Diphtheria, paraumonia; Poliomye-
  [illegible] 1873—ab
  autoserotherapy in rheumatism, [le Floch] 1212—ab
  familial, in hemorrhagiparous conditions, [Chalier] 1382—ab
  hemolytic, in multiple sclerosis, [Koresios] 975—ab
SERUM: See also Pneumococcus; Scarlet Fever; Streptococcus; Vaccines; etc.
  animal, acute anaphylactic shock from, [Neale] 452—ab
  antivenom, use in shock from intravenous rattlesnake bite, [Atchley] ★385
  blood, analytic comparison of edema fluid and spinal fluid, [Bland & White] ★1492
  blood serum test of dementia paralytica, [Newman] 234—ab
  chicken, in pneumonia, [Miller] ★465
  convalescent, diphtheria treatment, [Hentschel] 1786—ab
  convalescent, measles, immunization with, 946
  convalescent, measles, injections, anaphylaxis from, 288
  convalescent, measles, prophylactic value, [Morales] 367—ab
  convalescent, measles prophylaxis, [Barenberg & others] ★4
  convalescent, pneumonia treatment with, [Beebe] 1865—ab
  convalescent, poliomyeliticidal action of normal human serum vs., 1269—E
  convalescent, poliomyelitis treatment with, [Netter] 1381—ab
  convalescent, psittacosis virus neutralized with, [Rivers & others] ★579
  convalescent, treatment of spider poisoning, 1026
  convalescent, whooping cough, 287
  depository for, Breslau, 880
  Flexner's, in meningitis, [Stookey & others] ★106
  goat (Tunnicliff), in measles prophylaxis, [Barenberg & others] ★4
  group differentiation of organism, [Thomsen] 638—ab
  horse, Normal Horse Serum, 1913
  human, desiccated, for blood group determination, [Eisler] 309—ab
  human, normal, poliomyeliticidal action, 1269—E
  immune, bacterial growth stimulants in, 802—E
  normal, effect on poliomyelitis virus, [Fairbrother] 1781—ab
  plasma, chlorine in, [Ribadeau-Dumas] 1055—ab
  plasma fibrinogen indexes of rheumatic infection, [Ernstene] 444—ab
  plasma hydrophagocytosis, 1509—E
  plasma, insulin inactivation by, [Karelitz] 79—ab
  plasma-protein loss with edema, [Bennett] 1996—ab
  plasma *proteins vs. blood hydration*, [Bruckman] 449—ab
  relationship among yeast-like fungi, [Lim] 1538—ab
  Shock: See Anaphylaxis
  transport, by airplane from Paris to Alexandria, 424
SESAME OIL brominized, [Goodyear] ★1002; [Smith] 1617—ab
SEVENTH DISEASE, [Finkelstein] 698—ab
SEWAGE, Beccari method of disposal, 948
  typhoid-paratyphoid bacilli in, [Begbie] 695—ab
SEX: See *also Fertility; Impotence; Sterility*; etc.
  education in Russia, 1192
  hormone difference between, ovarian extract and corpus luteum, 1445
  hormone, female, Frank test for, [Spencer] 1203—ab
  hormone, Lydin, 201
  hormone, physiologic chemistry of, gift to University of Chicago, 418
  instinct, when does it begin to show itself in children? [Richards] ★1014
  instruction in, for medical students, 281
  International Congress of *World League for* Sexual Reform, 603; 1191
  life and moral responsibility of women, 1442
  life, "history of the growth of moral conceptions pertaining to," 1191
  perversions in children, 1191
SEX—Continued
  "Sex Searchlights," Science Publishing Company, Inc., 814—BI
SEXUAL Sterilization: See Sterilization
SHARPEY-SCHAFER, E., defense of vivisection, 605; 801—E
SHAUGHNESSY, HOWARD J., 803
SHAVING brush, anthrax in, Chicago, 418
  lotions, hypersensitiveness to quinine in, [Burgess] 691—ab
SHAW'S GARDEN, celebrate discovery of quinine, 419
SHELLAC, methanol—methyl alcohol, 816
SHEPPARD-TOWNER ACT, A. M. A. resolution on federal aid for maternal welfare, 44; 49
SHIPS, American, meningitis in Filipinos on, from Orient, 537—E
  maritime quarantine regulations, Turkey, 547
SHOCK, Anaphylactic: See Anaphylaxis
  anhydremia in extensive superficial burns, [Underhill] ★852
  cause of low blood pressure produced by muscle injury, 204—E
  caused by antityphoid vaccine, [Gerbasi] 1383—ab
  conditions, magnesium hyposulphite in, [Boissel] 561—ab
  emotional, effect on gastro-intestinal tract, [Moleen] ★910
  experimental, [Blalock] 230—ab
  medical, [Atchley] ★385
  postoperative, acapnia in, [Henderson] ★572
  traumatic, glycogenic functioning of liver in, [Scarpello] 1460—ab
  Tuberculin: See Tuberculin
SHOE dyes, poisoning due to, 739
  survey of foot measurements, 945
SHOULDER: See also Clavicle
  congenital stigmas on posterior surface, [Ombrédanne] 973—ab
  dislocation, habitual, surgery for, [Oetiker] 1138—ab
  dislocation, habitual, tenosuspension for, [Henderson] ★1653
  dislocation, recurrent, elongation of coracoid *process for*, [Wilmoth] 1134—ab
  fracture, complete resorption of bone after, [Rothermel] 831—ab
  interscapulotheracic amputation, [Daland] 1619—ab
  sprain, routine management, [Coulter & Molander] ★1345
  tuberculosis, arthrodesis in, [Massart] 1624—ab
SHRIMPS, fluke in, [Du] 827—ab
SHWARTZMAN PHENOMENON, [Frisch] 1374—ab
SICK: See also Patients
  poor, million for, 1026
SICKLE-CELL Anemia: See Anemia
  phenomenon, 416—E
SICKNESS: See also Disability; Diagnosis; Disease; Medical Service; Patients
  among wage earners, 1274
  Insurance: See Insurance
  to save for, A. M. A. resolution on, 50
SIDEROSIS, pulmonary, [Bohrod] 1205—ab
"SIEVE graft", [Douglas] 301—ab
SIGHT: See Vision
SIGMOID, dolichosigmoid: treatment, [Bensaude] 375—ab
  inflammation, surgical treatment, [Delore] 1540—ab
  ovarian dermoid perforated into, [Mayer] 1789—ab
SIGMOID SINUS, thrombosis, [Tunstall] 626—ab
  tumor, with gangrenous area around small perforation, [Crane] ★262
SIGMOIDOSCOPY vs. x-ray diagnosis, [Yeomans] ★1907
SIGNS, diagnostic, 550
  neurologic, and *their discoverers, [Hall]* ★703
SILBERT cure of thrombo-angiitis obliterans, [Ireland] 646—ab
SILHOUETTES in solving dysmenorrhea problem, [Miller] ★1796
SILICA dust and lung disease, [Russell] ★1714
SILICOSIS, [Russell] ★1714; 1989
  an organization to combat, England, 606
  bill, England, 277
  from inhalations of lime dust or sodium chloride, 67
SILK, sensitivity to, [Taub] 294—ab; [Ramirez & Eller] ★1082; 1083—ab; [Taub] 1456—ab
  suture material, what happens to? [Christ] 1139—ab
  threads use in ureteral stone dislodger, [McKay] ★794
SILVER, colloidal, for cancer, [Stone] 228—ab
  colloidal, intra-arterial injection for deep phlegmon of hand, [Scollo] 305—ab
  colloidal, intravenously in inflammation or stone in gallbladder, 1447
  foil for burns, [Pfab] 459—ab
  nitrate for gastric ulcer, [Semskow] 239—ab
  nitrate, prophylaxis of ophthalmia neonatorum, 1609
  nitrate, treatment of somewhat enlarged and shallow, stellats lacerated cervix, 433
SILVER—Continued
  polishing, dust from, and pulmonary disease, [Russell] ★1714
  protein (argyrol) prophylaxis of ophthalmia neonatorum, 1609
SIMILAC, mineral values, [Weston] ★835
SINGER, CHARLES, gives Herzstein Lectures, 539
SINISTROSIS, 1759
SINUS: See also Carotid Sinus; Coronary Sinus; Frontal Sinus; Nose, accessory sinuses; Sigmoid Sinus; etc.
  arrhythmia in old people, [Faulkner] 444—ab
  in back, gallstones passed through, [McCay] 897—ab
  infected, in menstrual disorders in adolescents, [Lawrence] ★1148
  infected in tonsillectomized and nontonsillectomized children, [Kaiser] ★839
  infections, Efe Dron Hart Nasal Jelly, 952—BI
  surgery, separation of nates by adhesive plaster during, [Bearse] 1619—ab
SINUSITIS: See Bronchosinusitis
SIOMINE, 200
SIPHON system for maintaining continuous drainage, [Pottenger] ★1670
SIPPY Treatment: See Peptic Ulcer
SIXTH DISEASE, is it a disease entity? [Rietschel] 82—ab
SIZE-factor in development, British Association discuss, 945
SKELETON: See under Bone; Muscles
SKEPTICISM, intelligent, practitioner's need of, [Christian] 373—ab
SKIING, eye injuries from, [Strebel] 236—ab
SKIN: See also Dermatology; Epithelium; Mucous Membrane; Tissue; etc.
  abdominal, fat in, [Plaschkes] 901—ab
  allergy, Pirquet's, in pulmonary tuberculosis, [Parodi] 1056—ab
  Burns: See Burns
  cancer metastases in or directly underneath, [Uhlenbruck] 239—ab
  cancer, surgery for, [MacKee & Stone] ★1315
  capillaries, isolating from urine a substance which exerts dilating action on, 676
  capillaries, reactions to cold, [Lewis] 374—ab
  carbon tetrachloride effect on, 65
  chaulmoogra oil effect on, 363
  circulation disorders in rheumatic diseases, [van Breemen] 1790—ab
  condition in sensitivity to heat and cold, 1283
  cosmetics effect on, [MacKenna] 80—ab
  Disease: See also Dermatitis; Eczema; Eruption; Herpes; Mycosis; Urticaria; etc.
  disease, allergic, oral method of desensitization, 214
  disease, degree of disability in, 1521
  disease, diagnosis, 222
  disease, pruriginous, infantile arthritism, [Jumon] 1299—ab
  disease, ultraviolet ray therapy, [Schiller] 161—ab
  disease with vesicle formation, iodine allergy *of, [Jaffé] 459—ab*
  disinfectant, inefficiency of metaphen, [White & Hill] ★27
  disinfection with iodine, Grossich's method, [Curri] 1138—ab
  epidemic among Mandan Indians in 1837, [Pusey] ★1992
  epithelioma, radium for, [Ward] 1621—ab
  graft, "sieve" for covering defects of, [Douglas] 301—ab
  graft, tunnel, [Keller] 370—ab
  grafts, evolution, [Dobrzaniecki] 1871—ab
  grafts in burns of extremities, [Brown] 151—ab
  hospital, New York Skin and Cancer Hospital given a gram of radium, 1512
  lesions, chronic endogenous, from defective liver function, [Smithies] 447—ab
  lesions, pellagra-like, due to ketogenic diet, [Greer] ★863; [Guthrie] ★1912
  necrotizing toxin, [Weise] 1607—C
  of infants, powder or fat for, [Bayer] 1998—ab
  pigmentation and perfumes, 40—E; [Lane & Strauss] ★717
  pigmentation, gold sodium thiosulphate to clearing up brown spots, 1197
  pigmentation in rabbits vs. susceptibility to tar cancroid, [Suzuki] 211—ab
  pigments and posterior pituitary extracts, 483—ab
  pyoderma (ecthyma) gangrenosum, [Brunsting] 1533—ab
  Reaction: See also Intradermal Reaction; Skin test
  reaction in pneumonia, [Francis] 1535—ab
  reaction of pollen extract in hay-fever and asthma, [Joltrain] 696—ab
  reaction, Pirquet, and intracutaneous reaction to tuberculosis, 352
  reaction, *Pirquet, with human and bovine* tuberculin, [Benvenuti] 376—ab
  reaction to insulin, [illegible] ★193
  reaction to resorcinol *for early diagnosis of* pulmonary tuberculosis, [Marcialis] 1127—ab

SKIN—Continued
rub, danger from methanol as, 1525
scrapings, fungi in, reagent for demonstrating, [Cornbleet] *1743
significance for sodium chloride and water metabolisms, [Geréb] 308—ab
subcutaneous nodules in rheumatoid arthritis, [Dawson & Boots] *1894
Telangiectasia: See Telangiectasia
temperature in relation to sensation of comfort, [Ward] 753—ab
temperatures vs. radiant energy in steel workers, [Bloomfield] 161—ab
test in allergy, [Feinberg] *1665
test, intradermal, scratch, indirect and contact, [Ramirez & Eller] *1080
test, percutaneous tuberculin reaction preferable to, [Unshelm] 763—ab
test, Porges-Pollatschek, for pregnancy, [Strauss] 446—ab; 879—ab
test, sensitization determined by, [Stier] 967
Tuberculin Reaction: See Tuberculin
tuberculosis, arsenic plus gold salts for, [Noguer-Moré] 457—ab
tuberculosis, chronicity, [Dittrich] 900—ab
tuberculosis, diet for, Gerson; etc., [Axmann] 309—ab; [Wichmann] 762—ab; [Blumenthal] 1875—ab
tuberculosis, relation to tuberculosis of internal organs, [Wall] 241—ab
tumor, melanoma, metastases to eyes, [Cordes & Horner] *655
tumor, surgery for, [MacKee & Stone] *1315
tumor, sympathicoblastoma of thigh, [Jacobsen] 689—ab
tumor, tar, of mice, [Tworts] 454—ab
"wrinkle removers," [MacKenna] 80—ab
SKULL: See Cranium
SLEEP: See also Dreams
inducing, carminative action of onion, 1281
insomnia, controlled by Amytal, 1178
posture in, [Younger] 550—C
production in psychosis by sodium isoamylethylbarbiturate (Amytal), [Bleckwenn] 892—ab; *1168
sleepy arteries, 1228—ab
SLENDS CHEWING GUM, Dr. Rusby's testimony on, *723; 730—E
SLOSSE'S SIGN, 550
SMALLPOX: See also Cowpox
in Maryland, 941
vaccination and septicemia, [Grey] 453—ab
vaccination, central nervous system after, [Ustvedt] 84—ab
vaccination, encephalitis after, [van Rijsell] 242—ab; 280; [Grey] 453—ab; 738; [Grönberg] 901—ab; [Ogrinz] 903—ab; [Tuthill] 1534—ab; 1848
vaccination in infancy, 280; 1441
vaccination in Paris, 1359
vaccination in Vienna, 214
vaccination, influenzal pneumonia after, [Tuthill] 1534—ab
vaccination law, revised, Germany, 611
vaccination method which leaves no trace on skin, 1034
vaccination, orchitis after, [Schiavone] 1542—ab
vaccination within Turkish boundaries, 678
SMELL: See also Odor; Medicolegal Abstracts at end of letter M
taste dependent on sense of, 1855
SMI-LAX, 431—BI
SMITH, GRAFTON ELLIOT, 1270; 1679
SMITH BROTHERS' Cough Drops, asthmatic attacks from, 885
SMITH-SEALY Foundation: See Foundations
SMOKE, getting rid of, New York City, 871
loss of light due to, 1921
SNAKES: See also Rattlesnakes; Vipers
bite, local venesection for, [Hellaway] 1537—ab
bites, treatment, [Fallscheer-Zürcher] 236—ab
SNAPPING Thumb: See under Fingers
SNEEZING, strangulation of left lobe of liver, [Johnson] *662
SNIFF, 431—BI
SNOW: See Carbon Dioxide
SOAP, dermatitis from, and cleansing without irritation, 1525
suds enemas, effects on rectum and colon, 1608
SOCIAL aid exaggerated? 1362
conditions in Porto Rico, 619
hygiene campaign of Health Demonstration 1596
welfare work, increase, New York, 1272
welfare workers, tour through Germany, 217
SOCIALISM, medical, England, 543; 738; 1030; 1188; 1844
medical socialist organization, proposed, 1274
SOCIETIES, MEDICAL: See also list of societies at end of letter S; and under names of specific societies as Association of American Physicians; etc.
Berlin medical, 70th anniversary, 1684
county, and graduate teaching, 1513
county, charter members honored, McKean, Pa., 135
county, conference on public relations, New York, 1271

SOCIETIES, MEDICAL—Continued
county, plan to measure efficiency, 1433
county, resolution on contract practice, Washington, 275
county secretaries, first conference, Oregon, 208
historical gavel given to State Medical Society of Wisconsin, 1273
history of Madison County Medical Society, 1595
Società Italiana di anatomia, 546
Società Italiana di dermatologia e sifilografia, 279
Società Italiana di oto-neurooftalmologia, 878
Society for Digestive and Metabolic Diseases, 1029
Society for Promotion of Graduate Instruction, Berlin, 1685
state, and U. S. Pharmacopeial convention, [Hirschfelder] 220—C
state, fracture exhibits by, 206
to promote graduate study among physicians, Essen, Germany, 217
Woman's Auxiliaries: See Woman's Auxiliaries
SODA, Baking: See Sodium bicarbonate
Caustic: See Sodium hydroxide
Chlorinated: See Chlorinated Soda
fountains, sanitation, Maryland, 1105
SODIUM acid phosphate and allergy, [Beckman] *1582
aluminum sulphate baking powder, effects, [Lyman] 753—ab
Amytal: See Amytal
bicarbonate, alkalization in acute diseases, [Achard] 1782—ab
bicarbonate, effects of prolonged use of, 1608
bicarbonate interferes with digestion, [Chiladrey] 1374—ab
bismuth thioglycollate, Thio-Bismol, 200
Cacodylate: Cacodylate, sodium
Chloride: See also Salt
chloride and water metabolisms, [Geréb] 308—ab
chloride, chlorination in acute diseases, [Achard] 1782—ab
chloride for high intestinal occlusion, [Doglotti] 456—ab
chloride inhalation, soreness of lungs from, 67
chloride metabolism in pneumonia, [Sabatini] 561—ab; [Scholz] 1627—ab
chloride solution (hypertonic) injection in thrombo-angiitis obliterans, [Ireland] 646—ab
chloride solution (hypertonic) intravenously for ileus, [Clément] 971—ab; [Schnohr] 1954—ab
chloride solution, intravenously, [Garrington] 1018—ab
chloride solution intravenously to overcome effects of loss of gastric juice, 936—E
chloride solution (physiologic) for irrigating empyema cavity, 886
chloride solution (physiologic) in anhydremia in burns, [Underhill] *852; 1430—E
chloride solution (physiologic) injections in pneumonia, [Sabatini] 561—ab
chloride solution, venoclysis, [Hendon] *1175
chloride solution, what strength to be used for varices? 1039
chloride treatment of bromide intoxication, [Harris & Hauser] *91; [Wiedman] 1281—C; [Goldenberg] 1689—C
Desoxycholate: See Bile salts
fluorescein, diagnostic value in meningitis, [Bonar] 1373—ab
fluoride vs. basal metabolism, [Goldenberg] 1782—ab
hydroxide, homogenization with, [Velicogna] 165—ab
hydroxide in blood sugar determination, [de Jongh] 978—ab
hydroxide poisoning alkali reserve in poisoning with, [Sécoulitch] 455—ab
hydroxide, reagent for demonstrating fungi in scalp hair, [Cornbleet] *1743
Hypochlorite: See Chlorinated Soda
in diet, [Stone] *713
Iodide: See Iodide
Iodoxy Quinoline-Sulphate: See Chiniofon
Isoamylethylbarbiturate: See under Amytal
morrhuate injection for simple ganglion, [McEvedy] 1781—ab
nitrate and sodium potassium iodide solution, rational way to give, 953
nitrate, effects, in powder manufacture, 1282
nitrite in seasickness, [Lebensohn] 1455—ab
potassium bismuthyl tartrate, 797
ricinoleate in bacterial hypersensitiveness of intestines, [Morris] 1862—ab
Salicylate: See Salicylate
sulphide reagent for demonstrating fungi in scalp hair, [Cornbleet] *1743
thiocyanate for essential hypertension, [Ayman] *247
Thiosulphate: See also Gold sodium thiosulphate
thiosulphate, can neoarsphenamine and sulpharsphenamine be dissolved in solution of? 1119

SODIUM—Continued
thiosulphate for cyanide poisoning, [Schmidt] 832—ab
thiosulphate to prevent iodine irritation of skin, [Jaffé] 459—ab
tungstate in blood chemistry analysis, [Matthieu] 1130—ab
2-oxo-5-iodo-n-acetate: See Iopax
"SOFTLITE," glasses to protect eyes from glare, [Coblentz] *593
SOIL, variations in, and vitamin content of foods, 1040
SOLDERING fluid poisoning in children, [Aikman] *1662
SOLDIERS: See also Army; Veterans; Veterans Bureau; War; etc
extraordinary law against venereal disease, Bucharest, 811
SOLES: See Foot
SOLOMON Whitfield Smith's Venereal Medicine, 1606—BI
SOLUTION: See also Dextrose; Sodium chloride; etc.
SOMNOFORM, [Henderson] 1445—C
SOOT, cancer from, 611
SORENSEN Therapeutic Heater No. 921, 413
Therapeutic Inhaler No. 922, 413
SOUL, when does it enter the embryo? 1191
SOUND: See also Noise
audible, from tic of salpingopalatinus muscle to bystander, [Stoll] *796
phases in blood pressure determinations, 222; 886
SOUND (Instrument) passage, epinephrine in urethral applications to overcome difficulties, 1112
SOUTH AFRICAN Medical Congress, 542; 1112
Medical Association report on health insurance, 61
report on miner's phthisis, *1937
Union, mentally defectives in, 1926
SOUTHEASTERN Surgical Congress, organized, 603
SOUTHERN Medical Association meeting, 1356
SOUTHEY'S tubes for obstinate edema, [Bland & White] *1489
SPAHLINGER again, 1437
SPAS: See Health resorts
SPASMS: See also Convulsions; Pylorus; Stomach cardiospasm; Tetany
facial, 818
treatment diathermy, [Howitt] 453—ab
SPAYING the dog, 748
SPECIALISM the result of progress, 775—ab
SPECIALIST: See also Eye "specialist"; Food specialist; Ophthalmologist; Pediatrist; Venereal Disease; etc.
diplomas for, in ophthalmology, 140
laboratory methods and, [Irons] *244
miscellaneous, 1688—BI
U. S. government needs, 351
vision which belongs to the pioneer, 1645—ab
SPECIALIZATION, [Masson] *765
SPECIALTIES: See also under names of specific specialties as Gynecology; Obstetrics; etc
epidemiology as, [Bishop] *563
hospitals approved for residencies in, 289
industrial medicine as [Sappington & Marbaker] *1955
SPECIFIC GRAVITY, low, of urine, indicates hypostheuria and sexual weakness, 748
significance of urinalysis, 221
SPECIMENS: See also Museum
Lockyer collection, 1436; 1516
scientific, Chinese colleges need, 877
SPECTACLES: See Glasses
SPECTROSCOPIC tests of sulphemoglobinemia, [Harrop & Waterfield] *649
SPECTRUMS: See Fluorescence
SPECULUM examination and puerperal sepsis prevention, [Miller & others] *923
SPEECH: See also Phonetics
American Society for the Study of Disorders of Speech, study of stammering, 136
development, delay in, 1855
mechanism following laryngectomy, [Pancoast] *1321
motion pictures of person speaking whose tongue made visible by bismuth subcarbonate, 217
roentgen speech film, 873
SPELLING, plurals of nouns ending in "itis," 287
plurals of Leptospira, etc., 1933
SPERMATAZOA, aspermia and azoospermia, 683, 1284
injections, ovarian reactions after, [Fulconis] 973—ab
obtaining for diagnosis of sterility, 1366
SPERMATIC CORD, subcutaneous attachment, [Jensen] 904—ab
SPERMATORRHEA, 223
SPHENOIDS, use of iodized oil in diagnosis of, [Goodyear] *1002
SPHINCTER, control, disorder in spinal cord tumors, [Woltman] *1399
muscles, dilating, Austin's Irrigators, 343
Oddi's insufficiency after biliary tract infection, [Deaver] *1641
Oddi's spasm cause of jaundice, [Nanu-Muscel] 1702—ab

SPHINCTER—Continued
pyloric, resection of anterior half of, [Deaver] 1776—ab
vesical, tightening, in urinary incontinence in women, [Smith] 1292—ab
SPHYGMOMANOMETER, pressure in brachial artery under, [Forti] 1136—ab
SPIDER poisoning, fatal, by the "black widow" spider, 1026
SPINA BIFIDA occulta, [Reggiani] 1382—ab
SPINA ILIACA anterior superior, avulsion of epiphysis of, [Löhr] 699—ab
SPINACH concentrate in alimentary anemia, [Weston] ★834
iodine in, [Weston] ★835
sieved, Curtice Brothers Certified Nursery Foods, 486
treated with sulphur dioxide, vitamin A in, 347—E
SPINAL ANESTHESIA: See Anesthesia
SPINAL BLOCK: See Cerebrospinal Fluid
SPINAL CORD: See also Encephalomyelitis; Myeloencephalitis; Poliomyelitis
acute abdominal syndrome of physiologic sections, [Hamant] 1056—ab
chordotomy for intractable pelvic pain, [Beck] 1291—ab
compression; *arachnoidal cysts,* [Nicolaysen] 978—ab
compression, paraplegia from [Dassen] 238—ab
conditions, liver feedings in, [Wilkinson] 451—ab
degeneration in primary anemia of fowl, [McGowan] 1052—ab
degeneration, subacute combined, [McLester] ★719
echinococcus cyst, [Fleischer-Hansen] 1790—ab
injections into, 817
injury, laminectomy in, [Dowman] 626—ab
injury, Royle's sympathetic ramisection, [Poate] 1210—ab
myelitis, diathermy in, [Osterreicher] 1785—ab
myelopathy in pernicious anemia during liver extract administration, [Norn] 764—ab
myelosis, aleukemic, [Host] 1060—ab
myelosis (erythroleukemic) in infant, [Sorrentino] 457—ab
roentgen study, exploration with iodized oil, 213
sclerosis, subacute combined, [Delehanty] 230—ab
section, arterial pressure after, [Leriche] 1623—ab
syndrome in chronic myeloid leukemia, [Hettfleisch] 1217—ab
tumors involving, diagnosis, [Woltman] ★1398
tumors, surgical treatment, [Delagenière] 1211—ab
SPINAL FLUID: See Cerebrospinal Fluid
SPINE: See also Cauda Equina; Sacrum.
arthritis, hypertrophic, [Cottrell] 1944—ab
arthritis and trauma, 809
blastomycosis, [Jones] 300—ab
curvature, nephrogenous scoliosis, [Blumensaat] 1138—ab
deformity, cardiac failure in, [Coombs] 1868—ab
disturbances after amputating thigh, [Karfiol] 1386—ab
echinococcosis, [Dassen] 238—ab
fractures of cervical vertebrae, fixation and support of head, [Le Fevre & Jackson] ★1669
fractures, vertebral, paralysis after, 62
Injections into: See Injections, intraspinal
laminectomy in injuries, [Dowman] 626—ab
paravertebral abscess, [Rigler] 1536—ab
pathologic anatomy in women, [Übermuth] 1463—ab
spondylitis (lumbar), corset treatment, [Sinding-Larsen] 978—ab
spondylitis (posttraumatic) or Kümmell's disease, 1516
supporting structures of body, [Schanz] 829—ab
surgery, 61
tuberculosis, roentgen sign [Rigler] 1536—ab
tuberculosis, surgery for, 61
SPIROCHAETA hispanicum inoculation to in- [illegible] 55—ab
[illegible] [Miller] ★467
[illegible], [Mazza] 1541—ab
evolution, 1110
in puerperal fever, [Lash] 1453—ab
infective hepatitis and icterus due to, [Villa] 1541—ab
pneumopathy with, in sputum, [Albot] 560—ab
SPIROCHETOSIS: See also Jaundice, spirochetal
bronchopulmonary, with tuberculosis, 747
hemorrhagic, and of aqueous origin, 674
icterohemorrhagic, from bathing in the Seine, 946
meningeal, from bathing in river, [Troisier] 81—ab; 946
meningeal, from digital injury, [Troisier] 1870—ab

SPIROCHETOSIS—Continued
pulmonary, [Levington] 76—ab
SPIROMETRY: See Vital Capacity
SPLANCHNOPTOSIS, clinical significance and treatment, [Bortz] 445—ab
digestive tract, changes in, 1601
nephroptosis and, [Deming] ★251
right-sided, [Hemsley] 1210—ab
SPLEEN: See also Vein, splenic
bilirubin formation in, [Payne] ★1065
blood platelets and, 537—E
changes in acute pyogenic infections, [Hewer] 1536—ab
changes in subacute bacterial endocarditis, [Fox] 1376—ab
echinococcus cysts, [Oulié] 1134—ab; [Capecchi] 1215—ab
ectopic, causing intestinal obstruction, [Salvin] 962—ab
Enlarged: See Splenomegaly
Excision: See Splenectomy
extract in lymphatic leukemia, [Busman & Woodburne] ★1253
extract in pulmonary tuberculosis, 545
extracts, effect on basal metabolism, [Schneider] 1303—ab
feeding in secondary anemia, [Giffin & Watkins] ★591
feeding in tuberculous arthritis, [Fliegel] 1778—ab
function vs. hepatotherapy, [Iaar] 1625—ab
hemangioma, primary, [Schwarz] 1544—ab
hormone of? [Tremonti] 1873—ab
hormone and cancer, 1350—E
interrelation to parathyroid, 937—E
irradiation in congenital anemia, [Vogt] 446—ab
irradiation in myeloid leukemia, [Rikl] 902—ab
lymph node syndrome in myeloid leukemia, [Doumer] 972—ab
relation to jaundice, [Payne] ★1064
roentgen study using thorium dioxide solution, 1761
rupture, [Goinard] 1134—ab
size changes in tuberculosis, [Loránd] 310—ab
Treatment: See also Spleen extract; Spleen feeding
treatment of erythremia, [Kahler] 633—ab
treatment, intramuscular injection of hog *spleen cures acute lymphocytic leukemia,* [Pearce] 1210—ab
tuberculosis, [Cynman] 1139—ab
SPLENECTOMY, advisability in pernicious *anemia,* [Spengler] 1706—ab
for splenic vein thrombosis, [Vertán] 831—ab
in childhood, [de Souza] 1211—ab; [Hirsch-Kauffmann] 1461—ab
treatment after, [Greppi] 761—ab
SPLENOMEGALY, etiology, rôle of typhoid allergy in, [Delalande] 455—ab
of appendicular origin, 609
primary, in liver patients, bandage sign, 1110
thrombosis of splenic vein relation to, [Epstein] 1059—ab
SPLINT, for cervical vertebrae fractures, [Le Fevre & Jackson] ★1669
Impallomeni's triangular plaster splint for humerus fractures, [Marri] 632—ab
posterior splinting to overcome contractures in burns, [Hilbert] ★1021
SPONDYLITIS: See Spine
SPONGES, luffa, use of, in instrument sterilizers, *[Eichelter] 84—ab*
SPONGIOBLASTOMA, medullary, [Woltman] ★1400
SPORES, antiseptic to prevent, 817
SPORTS: See Athletics
SPRAIN, shoulder, [Coulter & Molander] ★1345
SPRUE, anemias of, [Ashford] 79—ab
clinical syndromes that include achlorhydria, [McLester] ★719
etiology, diagnosis, dietetic treatment, [Bassler *& Lutz]* ★1961
treatment, liver, pancreas and stomach extracts, [Castellani] 80—ab
tropical, [Baumgartner] 1939—ab
SPURS, gonorrheal, a misnomer, [von Lackum & Palomeque] ★472
SPUTUM, asbestosis bodies in, [Lynch & Smith] ★659
bronchomycosis, [Stokes & others] ★14 (correction) 209
coal dust in, of miners, 1033
concentration, incubation method, [Sweany] 1532—ab
method of enrichment for researches on tubercle bacilli in, [Velicogna] 165—ab
nerve effect of phrenicectomy, [O'Brien] ★652
spirochetes in, [Albot] 560—ab
tubercle bacilli in, demonstration by cultivation, [Sundt] 1060—ab
SQUILL compounds, Anasarcin Chemical Company gift for fellowship for study of, 418
STAB Wounds: See Wounds
STAFF CONFERENCES: See Hospital
STAINING of blood smear, [Brinnitzer] 977—ab

STAINING—Continued
of calcium, [Cameron] 1946—ab
tubercle bacilli, [Moss] 627—ab
STAINS of cod liver oil, removal, 953
STAMMERING: See Speech
STAMPER, J. W., 1931—BI
STANFORD UNIVERSITY: See Leland Stanford University
"STAPHYLOCINE," [Greenbaum & Harkins] 815—C
STAPHYLOCOCCUS, acute empyema, [Locke] 1050—ab
aureus, effect of metaphen, [White & Hill] ★27
aureus, highest dilution of disinfectant killing, [Birkhaug] ★917
filtrates in infections, [Greenbaum & Harkins] 815—C
hemolytic, infections, vs. increased provision with vitamins, [Pfannenstiel] 169—ab
infection cause of brain abscess, [Coleman] ★568
infection, chronic, polycystic kidneys with bilateral nephrolithiasis, [Peacock & Corbett] ★1261
pyogenes-aureus, infection of frontal sinus, [Woodward] ★927
infections, value of toxin in, [Weise] ★325; [Greenbaum & Harkins] 815—C; [Weise] 1607—C
Pyridium, 34
toxin in treatment of furunculosis, [Weise] ★324; [Greenbaum & Harkins] 815—C; [Weise] 1607—C
yellow, food, poisoning, 36—E
STAPHYLODERMA, toxin for, [Weise] ★324
STARCH,•Argo Corn Starch, 1179
deficient diet, effect, [Gudjonsson] 1464—ab
limitation of, as prophylaxis against colds, [Higgins] 826—ab
STARR, LESTER, convicted, 941
STARVATION: See also Fasting; Hunger
allergic disease in, [Beckman] ★1582
famine edema, [Aykroyd] 1131—ab
STATE Fair: See Fair
Hospital: See Hospital
Institute of Public Health of Oslo, 1029
list of states recognizing National Board of Medical Examiners certificates, ★533
Medicine: See Medicine, state
Societies: See Societies
University of Iowa, health board, 1270
STATE BOARD REPORTS
Alabama, 886
Arizona, 749
Arkansas, 749
Colorado, 1120; 1610
Delaware, 818; 956
District of Columbia, 147; 1367
Florida, 434
Georgia, 1042
Hawaii, 364; 1990
Idaho, 616
Illinois, 147; 363
Indiana, 818; 1120; 1692
Iowa, 1198
Kansas, 552
Kentucky, 749
Louisiana, 685
Maryland, 886; 1281
Michigan, 956; 1526
Minnesota, 1448
Mississippi, 1764
Missouri, 1856
Nebraska, 616
Nevada, 1368
New Jersey, 1934
North Carolina, 1857
Ohio, 67; 1120; 1856
Oklahoma, 1198
Oregon, 434
Pennsylvania, 223; 1610
Porto Rico, 1931
Rhode Island, 67; 1041
South Carolina, 1990
Utah, 1856
Vermont, 616
Virginia, 1368
Washington, 223
West Virginia, 289
Wisconsin, 363; 685; 1367
Wyoming, 1448
STATE BOARDS: See also Licensure
hospital intern year required by, ★533; 535—E
Michigan, internship required by, 1133
New Jersey, prosecutions by, 602
osteopaths and chiropractors seek separate
STATUS asthmaticus: See Asthma
STEALING, liability *for* articles stolen *from* waiting rooms, 876
STEAM engine, compared with efficiency *of* human muscles, 799—E
iritis in cleaner and presser, 531
STEAPSIN: See Lipase
STEEL workers, skin temperatures *of,* [Bloomfield] 161—ab
STEENBOCK process, priority as to discovery of, of antirachitic activation, 220—C
STEPHAN'S insulin preparation, [van der Reis] 902—ab

STEREOSCOPIC views of nasal sinus conditions, [Goodyear] *1002
STERILITY: See also Fertility; Impotence
  diagnosis, 1366
  endocrine influence in, [Rowe] *1219
  female genital hypoplasia and, [Meaker] *468
  how much can one depend on amputation of cervix to prevent conception? 1041
  in endometriosis, [Keene & Kimbrough] *1164
  menstrual disorders in adolescents and, [Lawrence] *1148
  operation to overcome, after removal of tubes, 817
  ovarian deficiency as cause of, [Macomber] 621—ab
  relation of fatness to, [Hill] 758—ab
  roentgen-ray, aspermia, 683; 1284
  tests of, 1931
STERILIZATION, SEXUAL and churches, 874
  danger, 1328—ab
  hysterectomy for, [Fullerton & Faulkner] *1563
  medical and ethical aspects, 1282
  of insane, 58
  of mental defectives, 605; 1188; 1515
  of unfit, 806
  of women, Dickinson technic of, 1854
  temporary, in child-bearing woman, [Findley] *857
  without unsexing, [Putney] 302—ab
STERILIZATION, SURGICAL: See also Disinfection
  hand, alcohol for, 433
  inefficiency of metaphen, [White & Hill] *27
  methods, criticism of, 739
  of hypodermic syringe, 433
  of linen, by dry heat of domestic oven, 288; 739
  of operating room, 222
STERILIZERS, instrument, use of luffa sponges in, [Eichelter] 84—ab
STERNOX, 1038—BI
STEVENS, C. H., Consumption Cure; 951—BI
STEVENS, ROLLIN H., chairman of Local Committee on Arrangements, address, 52
STIGMAS, congenital, on shoulder, [Ombrédanne] 973—ab
STILLBIRTH: See also Medicolegal Abstracts at end of letter M
  causes, [Puccioni] 697—ab
  French Congress of Hygiene, 1600
  granuloma inguinale and, [Wilson] *1093
STILL'S DISEASE, abortive form, [Steinitz] 562—ab
STODDARD'S SOLVENT, iritis from, 551
STOKES, WILLIAM ROYAL, memory honored, 1751
STOKES-ADAMS SYNDROME: See Heart block
STOMACH: See also Epigastrium; Gastro-Intestinal Tract
  abnormalities in gastro-intestinal disorders, [Friedenwald] *906
  Achylia: See Achylia gastrica
  acidity, achlorhydria in advancing years, [Davies] 1781—ab
  acidity, achlorhydria, pernicious anemia develops in, [Davis] 628—ab
  acidity and allergy, [Beckman] *1584
  acidity and fermentation, James, prescription for, 1688—BI
  acidity, clinical syndromes that include achlorhydria, [McLester] *719
  acidity in peptic ulcer cases, [Brown] *1145
  acidity, neutral red in achlorhydria, [Streicher] *326
  acidity, Plant's Magnesia Wafers, 935
  acidity, relation of pyelitis to achlorhydria, [Blair] 1295—ab
  acute dilatation, [van Amstel] 239—ab; [Ward] 446—ab; [Johnson] 448—ab; [Petitpierre] 1139—ab; [Stipa] 1872—ab
  bactericidal function, [Klinge] 976—ab
  cancer and ulcers [Mayo] *645; [Kirkegaard] 1546—ab
  cancer, anemic type, 545
  cancer, dilatation in, [Klason] 1878—ab
  cancer, 500 cases, [Poscharissky] 562—ab
  cancer, gastric function in [Bloomfield] 73—ab
  cancer, pepsin estimation in, [Polland] 963—ab
  cancer, problem, [Saltzstein] 624—ab
  cancer, roentgen studies, [Feldman] 1536—ab
  cancer, surgical treatment, [Finsterer] 307—ab
  cancer, total gastrectomy for, [Walters] *102; [Judd] 301—ab
  cardiospasm, gastric feeding for, [Einhorn] 228—ab
  cardiospasm, Heyrovsky's method for, [Haggstrom] 1790—ab
  congenital atresia in new-born, [Piana] 1057—ab
  contents examination, [de Salamanca] 1626—ab
  contents examination, barium sulphate meal vs. intestinal protozoa, [Andrews] 1617—ab
  contents examination, Ewald test meal and neutral red test compared, [Streicher] *326
STOMACH—Continued
  desiccated, in pernicious anemia, [Sturgis & Isaacs] 73—ab; [Rosenow] 82—ab; [Isaacs & Sturgis] *585; [Winge] 764—ab; [Faber] 764—ab; 797; [Meulengracht] 901—ab; [Lambin] 1055—ab; 1589; [Allerton] 1622—ab; [Decastello] 1876—ab; [Leschke] 1876—ab; [Holboll] 1951—ab
  dilatation in gastroduodenal ulcer and cancer, [Klason] 1878—ab
  disease vs. thyroparathyroidectomy, [Winkelstein] 1617—ab
  disorders, J. Knapp fined for illegal practice, 669
  diverticula, [Allan] 691—ab
  evacuation (continuous) for postoperative ileus, [Jancke] 1305—ab
  extract in pernicious anemia, [Meulengracht] 462—ab
  extract in sprue, [Castellani] 80—ab
  foreign body, phytobezoar, [Cole] 156—ab
  function, alteration in ulcer, [Smith & others] 74—ab
  function in artificial tropical climate, [Borchardt] 458—ab
  function in cancer, [Bloomfield] 73—ab
  gastric pain in functional dyspepsias, [Oury] 1054—ab
  hemorrhages in digestive perivisceritis, [Chiray] 1135—ab
  kidney relation to, [Steinitz] 1628—ab
  lavage in pyloric syndrome of infants, [Zuviria] 1460—ab
  "leather bottle," total gastrectomy, [Judd] 301—ab
  leukodiapedesis, [Santomauro] 1703—ab
  pain, in functional dyspepsias, [Oury] 1054—ab
  pain, type in peptic ulcer cases, [Brown] *1145
  pain, unique surgical record, [Clements] 1781—ab
  paralysis, postoperative, prevention, [Hilarowicz] 831—ab
  photography, [Aschner] 369—ab
  "rash," given in differential diagnosis of scarlet fever, 885
  resection, agastric anemias, [Morawitz] 976—ab
  response to cereals, 1101—E
  roentgen study in ulcer and carcinoma, [Feldman] 1536—ab
  sarcoma, [Balfour] 300—ab
  secretion, acidity and chloride content of juice, [Rudd] 1297—ab
  secretion, acidity in pulmonary tuberculosis, [Rave] 1463—ab
  secretion, effect of insulin, [Roholm] 901—ab; [Meyer] 1461—ab; [Roholm] 1954—ab
  secretion, effects of loss of juice, 936—E
  secretion, juice in pregnancy, [Arzt] 1454—ab
  secretion of free hydrochloric acid vs. hyperthyroidism, [Brown] 1291—ab
  secretion of gland vs. bile after cholecystogastrostomy, [Manuilow] 240—ab
  secretion, pepsin in, [Polland] 963—ab
  secretion vs. emotional shock, [Moleen] *910
  secretion vs. salt free diet, [Cohen] 1785—ab
  secretion vs. sodium chloride in diet, [Elmer] 900—ab
  Surgery: See also Cholecystogastrostomy; Peptic Ulcer, surgical treatment; Stomach cancer; Stomach resection
  surgery, electric bistoury in, [Guillemin] 1459—ab
  surgery, subtotal gastrectomy technic, [Strauss & others] *1883
  surgery, total gastrectomy, [Judd] 301—ab
  surgery, vaccination before, [Murard] 1131—ab
  test with neutral red, [Streicher] *326
  thoracic, [Adams] 1052—ab
  tuberculosis, 1032; [Cullman] 1946—ab
  tumor, benign neoplasms, [Semenza] 974—ab
  tumor, glioma, [Harild] 1464—ab
  tumor, malignant growths, [Brindley] 1944—ab
  tumor, multiple adenopapillomas, [Ackman] 1377—ab
  tumor vs. ulcer, [Domanig] 310—ab
  Ulcer: See Peptic Ulcer
STONE: See Calculi; Rock
STOOLS: See Feces
STOPAKE Powders, Knewitz's, 1606—BI
STORES, miscellaneous, sell medicines, 1842
STOUT'S Cold Tablets, 1195—BI
STOVAINE, intraspinally action on human uterus, [Bourne] 827—ab
STRAMONIUM, action and uses, 954
  effect in parkinsonism, [Hoedemaker & Burns] *91; [Worster-Drought] 374—ab; 1283
  in postencephalitic syndrome, [Jacobson] 1047—ab
STRANGULATION, hazard from lid of infant's screened bed, [Millikan] 816—C
STREET Accidents: See Accidents; Automobiles
  cars, noise in Berlin, 949
  cars, sickness from riding in, [Lebensohn] 1455—ab
  sweeping, dust from, and lung disease, [Rus-
  tarred, cause of cancer, [Lehmann] 1950—ab
  sell] *1714
STREPTOCOCCUS, anaerobic, puerperal infection due to, [Colebrook] 896—ab; [Brown] 1453—ab
  antiserum for rheumatic fever, [Hitchcock] 1531—ab
  antiserum given in agranulocytosis, [Smithburn & others] *780
  antiserums, antitoxic units extremely variable, 673
  antitoxic serum, value, in scarlet fever, [Toyoda] 1458—ab
  cardioarthritidis, biologic products, [Small] 1048—ab
  epidemicus of septic sore throat, culture medium for isolating, [Pilot & others] *264
  etiology of cholecystitis, [Williams] 1132—ab
  gonorrheal spurs a misnomer, [von Lackum & Palomeque] *472
  hemolyticus, agranulocytosis, [Roberts & Kracke] *780
  hemolyticus, bacteremia and acute throat infections, [Ballenger & others] *1828
  hemolyticus, in scarlet fever is an individualized and special type, 673
  hemolyticus, endocarditis after teeth extraction, [Kapsinow] *409
  hemolyticus, etiology of common cold, [Shibley & others] *1553
  hemolyticus from scarlet fever convalescents, [Kirkbride] 964—ab
  hemolyticus, highest dilution of disinfectant killing, [Birkhaug] *917
  hemolyticus infection of ear and intestinal tract, [Wishart] *1087
  infection and infective granulomas, [Poynton] 1622—ab
  infection in brain abscess, [Coleman] *568
  infections of epiphyses and short bones, [Phemister & others] *995
  infections, transfusion in, [Landon] 1531—ab
  laryngitis, acute, [Richards] *768
  nonhemolytic, chronic arthritis, [Margolis] 691—ab
  opsonic index, [Piana] 1540—ab
  pleurisy, ethylhydrocupreine hydrochloride for, [Acuna] 1057—ab
  puerperal sepsis, [Dafoe] 1203—ab
  Pyridium, 34
  selective localization of, Rosenow on, 1438
  specificity in scarlet fever; erysipelas and puerperal fever, [Salazar] 1301—ab
  transform diphtheriods into, 1590—E
  vaccine for whooping cough, [Belatskaya] 637—ab
  value of Disulphamin as streptococcide, 1689
  viridans, blood cultures in acute rheumatic fever, 417—E
  viridans, test tube vaccines, 597—E
STREPTOTHRICOSIS, pulmonary, [Singer] 1204—ab
STREPTOTHRIX, serologic and biologic reactions in study of, [Bartoli] 1460—ab
STRONTIUM iodide for amniography, [Menees] 1861—ab
STROOPAL fraud, 1037—BI
STROPHANTHIN, for coronary thrombosis, [Brown] 1049—ab
  poisoning, chronic, [Hyman] 1617—ab
STROPHANTHUS, circulatory effect, [Tainter] 448—ab
  hepatic vein reactions, 868—E
STRYCHNINE, laws regulating sale of, [Aikman] *1664
  poisoning in children, [Aikman] *1661
STUDENTS: See also Children, school; Nurses; Schools; University; etc.
  dispensary for University City, 607
  employment bureau for, 1682
  health at University of Michigan, 1841
  infirmary facilities at University of Wisconsin, 1273
  tuberculous, university courses for, Germany, 282
STUDENTS, MEDICAL: See also Education, Medical; Fellowships; Graduates; Interns; Scholarships; Schools, Medical; etc.
  admitted to medical schools, *498; 535—E
  American, in British medical schools, 57
  by states, *504; *505; *506; 535—E
  entrance credentials presented by freshman, [Zapffe] 755—ab
  fifth year, *503; *504; 535—E
  Harvard fellowships for, 1510
  home states of, *502; 535—E
  loan fund created by Nebraska State Medical Association, 135
  number, *503; *504; *505; 535—E
  physical examination required, at University of Tennessee, 208
  premedical education, first year, *487; 535—E
  proposed collegiate hostel, 276
  qualifications of freshmen, *497; 535—E
  securing title of foreign assistant, France, 739
  sex instruction for, 281
  tuberculosis among, [Helmbeck] 1306—ab
  warned against studying medicine, Austria, 214
  women, *504; *505; 535—E; 949
  women, readmitted to London hospital, 1844
STYLES, women and breast prolapse, [Farrar] *1329
SUBARACHNOID Hemorrhage: See Meninges

- SUBCONSCIOUS mind, 1278
- SUBCUTANEOUS Tissue: See Tissue
- SUBTONIN for essential hypertension, [Ayman] ★247
- SUCTION in empyema treatment in children, [Hart] 1129—ab
- SUFFOCATION: See Asphyxia
- SUGAR: See also Candy; Carbohydrates; Dextrose; Lactose
  - center, Claude Bernard's theory of, not substantiated, [Hiller] 459—ab
  - consumption (per capita), [Stone] ★710; ★711
  - consumption in diabetes, [Mills] 1939—ab; 1917—E
  - in infant's feeding, [Battistini] 974—ab
  - in pentosuria, 1102—E
  - invert, and varicose veins slough, [Kilbourne] ★787
  - limitation in prophylaxis of colds, [Higgins] 826—ab
  - solution for varicose veins, [Domanig] 84—ab
  - sugared condensed milk: vitamin C in, [Bakke] 698—ab; (correction) 904—ab
  - sugared water for invisible writing, [Langen] 1628—ab
  - therapeutic action in cardiac insufficiency, [Kisthinios] 1948—ab
  - tolerance, fluctuation in, 1284
- SUGGESTION: See also Hypnosis
  - treatment of hay-fever, [De Rachewsky] 1213—ab
- SUICIDE: See also Medicolegal Abstracts at end of letter M
  - in 20 years in Spain, 1276
- SULPHARSPHENAMINE, be dissolved in solution of sodium thiosulphate? 1119
  - efficacy in Wassermann-fast syphilis, [Grund] 693—ab
- SULPHEMOGLOBINEMIA, [Harrop & Waterfield] ★647
- SULPHOCOL and Sulphocol Sol, 594
- SULPHOCYANATE in hypertension, [Ayman] ★247; [Saleeby] 965—ab
- SULPHUR: See also Acid, sulphuric
  - colloidal, Sulphocol and Sulphocol Sol, 594
  - dioxide, cod liver oil, butter and alfalfa extracts treated with, 347
  - Fenholloway Sulphur Springs Water, 952—BI
  - in olive oil, pyrogenic action, [Shilvock] 1132—ab
  - inhalations in pulmonary tuberculosis, [Siegel] 166—ab
  - nostrum, Sanovapor, 1365—BI
  - roentgen diagnosis of synovial adhesions by disodium salt of tetraiodo-orthosulphobenzoic acid, 1749—E
  - sulphemoglobinemia, [Harrop & Waterfield] ★647
  - treatment of furunculosis, [Herxheimer] 1629—ab
- SUMMER, camp, boy's, meningitis in, 539
  - camp for diabetic children, [Wendt] 232—ab
  - camps, inspected by State Department of Health, Connecticut, 539
  - health schools, California, 802
  - resort inspection, Michigan, 349
- SUN WHEAT BISCUITS, 595
- SUNBURN, posture in sleep, [Younger] 550—C
- SUNFLOWER seed in infant food, [Ribadeau-Dumas] 898—ab
- SUNLIGHT: See also Heliotherapy; Ultraviolet Rays
  - exposure of cow to, antirachitic value of milk, [Steenbock] 160—ab
  - lamp, General Electric type S-1 bulb, radiations from, [Coblentz] ★411
  - lamp, Schickerling Ultraviolet Sun Bath Lamp, [Coblentz] ★411; 954
  - loss of, due to smoke, 871; 1921
  - perfumes and pigmentation, 40—E; [Lane & Strauss] ★717
  - tuberculous bone disease and, 250—ab
  - ultraviolet transmitting glasses, [Coblentz] ★864
- SUNLIT Ultraviolet Glass, 484
- SUNWHEATS, 595
- SUPPOSITORIES, anesthesia, [Fryszmann] 1544—ab
  - Mercurochrome Suppository Aces, 594
  - vaginal, contraceptive, irritation of penis from, 1609
- SUPPURATION: See Fingers; Hand; Lungs; Pneumonitis; etc.
- SUPRARENALS, cancer, [Trémolières] 560—ab
  - cancer and endocrines, 1189
  - congenital absence with Addison's disease, [Crosby] 754—ab
  - cortex and tumor, [Woglom] ★473
  - cortex, hypercrinic forms of obesity, [Faelli] 1459—ab
  - cortex injection for cancer (Coffey-Humber method), 1349—E; [Coffey] 1376—ab
  - cortex, nature and structure, [McGowan] 1380—ab
  - cortex substance, extract, [Coffey] 1376—ab
  - cortical insufficiency and cytotoxic contraction of, [Saphir & Binswanger] ★1007
  - excision, contradictory results from, 1031
  - excision in pancreatic diabetes, [Perrotti] 1460—ab
- SUPRARENALS—Continued
  - function, 1506—E; 1836—E
  - hormone and cancer, 1350—E
  - hyperfunction without anatomic changes, [Bauer] 460—ab
  - insufficiency, morphine glycemia test in, [Targowla] 1212—ab
  - irradiation for essential hypertension, [Ayman] ★247
  - medullary adenoma with paroxysmal hypertension, [Labbé] 303—ab
  - roentgen diagnosis in Addison's disease, [Thompson] 1621—ab
  - secretions from cortex and medulla, [Mayo] ★645
  - surgery, indications for, [Crile] 1619—ab
  - theories of diabetes, 344—E
  - tumor, hypernephroma, [Rittmann] 378—ab
- SUPREME COURT: See under Court
- SURFACE TENSION, of dentifrice, 1267—E
- SURGEONS: See also Fees; Malpractice
  - American Association of Obstetricians, Gynecologists and Abdominal Surgeons, 805
  - American College of, 805
  - AMERICAN PHYSICIANS AND SURGEONS, 614
  - binocular loupe for, [Lahey] ★1975
  - breast tumors from standpoint of, [Bevan] ★1311
  - death rate, greater than practitioners, [Mayo] ★646
  - new mask that protects patient and, [Mellinger] ★662
  - orthopedic, new problems, [Francisco] ★1467
  - postgraduate study for, South Africa, 810
  - questionnaire sent to, on breast cancer, [Trout & Peterson] ★1309
  - rapier dueling and, 216, 598—E
  - Royal College of Surgeons, examination, ethics, 1517
  - Royal College of Surgeons, museum, 277
- SURGERY: See also Diathermy; under names of various organs as Gallbladder; Stomach
  - bacteriophage in, [Albee] 369—ab
  - civil, gas gangrene in, [Eckhoff] 968—ab
  - complications in diabetics, insulin for, [Holten] 84—ab
  - Congress of Surgery, Argentina, 1847
  - French Congress of, 1029
  - French Congress of Plastic Surgery, 1358
  - French Society of Reparative, Plastic and Aesthetic Surgery, 873
  - French Surgical Society, 1516
  - German Surgical Society, 61
  - history, ceremonies honoring Ambroise Paré, 1682
  - history, in memory of D'Antona, 809
  - history, McDowell day, 1595
  - history, Ollier centenary, 876
  - in dermatologic practice [MacKee & Stone] ★1315
  - in moving pictures, [Stout] ★1742
  - in the future: "Hominal Physiology," 1357
  - kidney, function tests in surgical diseases, [Wildegans] 1874—ab
  - mechanophysiotherapy and, [Apostoleano] 1135—ab
  - operating room, sterilization of, 222
  - orthopedic, International Congress of, 1925
  - plastic, in nonmalignant nodules of breast, [Farrar] ★1329
  - plastic, modify or improve large bulbous red nose? 883
  - plastic, of inguinal hernia, [Beccherle] 1625—ab
  - plastic, of urethra and penis, extensive gangrene, [Mallard] ★332
  - plastic repair of inguinal hernia [Pettit] ★1497
  - postoperative accidents in cerebral surgery, 1682
  - postoperative adhesions, 1119
  - postoperative changes in blood platelets, [Willinsky] 234—ab
  - Postoperative Complications: See also Lungs; Parotitis; Tetany; Thrombosis; Thyroidectomy
  - postoperative death in infants, [Riser] 972—ab
  - postoperative deaths, causes, [Petrén] 622—ab
  - postoperative deaths due to heart failure, [Westerborn] 1546—ab
  - postoperative effect on arteries protracted, [Ipsen] 461—ab
  - postoperative elevation of diaphragm, [Breuer] 1784—ab
  - postoperative gastric paralysis, [Hilarowicz] 831—ab
  - postoperative healing process in osteomyelitis, [Kreuscher] 825—ab
  - postoperative hypoventilation, [Overholt] ★1484
  - postoperative ileus, [Jancke] 1305—ab
  - postoperative laryngeal edema, [Richards] ★770
  - postoperative phlegmon of neck and urethra, [Stutzin] 1545—ab
  - postoperative reactions: leukocytosis, fever, and azotemia, [Berceanu] 1381—ab
  - postoperative respiratory complications, [Aikenhead] 1621—ab
  - postoperative respiratory failure, Drinker respirator in, [Drinker & others] ★1251
  - postoperative retention of urine, [Florini] 761—ab; [Rotthaus] 1543—ab
- SURGERY—Continued
  - postoperative scars, painful abdominal, [Bancroft] 824—ab
  - postoperative shock, acapnia in, [Henderson] ★572
  - preoperative narcotic, tribrom-ethanol, [Wood] 1615—ab
  - preoperative vaccination in gastric surgery, [Murard] 1134—ab
  - preparation of patients for, 1516
  - progress, recent contributions of medical men to, [Mayo] ★644
  - rapier dueling and, 216; 598—E
  - risk, in hyperthyroidism, [Hoskin] 896—ab
  - risk, patient with heart disease as, [Butler & others] ★85
  - scalpel, [MacKee & Stone] ★1315
  - Southeastern Surgical Congress, organized, 603
  - training in, for interns in hospitals, ★513; ★514; 535—E
  - unique record, [Clements] 1781—ab
  - *Western Journal of Surgery*, 1028
  - Wounds: See Wounds
- SURGICAL INSTRUMENTS: See Instruments
- SUTURES: See also Catgut
  - for plastic repair of inguinal hernia, [Pettit] ★1497
  - material, what happens to it? [Christ] 1139—ab
  - plicating, of aorta, [Schaack] 311—ab
  - rectus, in median laparotomy incisions, [Latzko] 763—ab
- SWABS, making, for dry treatment of discharging ears, [Pratt] ★1259
- SWALLOWING capsules of tetiothalein sodium, accident in, [Heuser] 1058—ab
  - foreign bodies from toys, A. M. A. resolution on, (V. 94) 2073; 1103
  - throat in sword swallowers, 139
- SWEAT: See also Deodorant
  - analogy of black colostrum to melanidrosis, [Greig] 1380—ab
  - bismuth in, [Schaffer] 1533—ab
  - glands, abscesses, irradiated substances for, [Ried] 1218—ab
  - glands and bath pruritus, [Gaines] 1129—ab
  - insensible, and basal metabolism, 1431—E
  - secretion vs. liver feeding, [Fröhlich] 903—ab
  - significance, 347—E
- SWICK Method: See Iopax
- SWIMMER, efficiency of muscles in, 799—E
- SWIMMING: See also Bathing; Drowning
  - baths, public, hygiene, [Grierson] 162—ab
  - pools, Detroit's, 135
- SWINE: See Hog
- SWINE ERYSIPELAS: See Erysipeloid
- SWORD, rapier dueling and surgery, 216; 598—E
  - swallowers, throat in, 139
- SYCOSIS vulgaris, phenol parenterally in, [Matusis] 296—ab
- SYLVIUS, Aqueduct of: See Aqueduct
- SYMPATHECTOMY: See also Ganglionectomy
  - chemical, in genital dysfunctioning, [Revoltella] 301—ab
  - in angina pectoris, [Danielopolu] 830—ab
  - in arthritis, [Coughlin] 152—ab
  - in megacolon in children, 1112
  - lumbar, effect, on growth of legs shortened from poliomyelitis, [Harris] 1779—ab
  - lumbar, in essential hypertension, [Ayman] ★247
  - periarterial, anatomic result, [Blair] 1867—ab
  - periarterial, for pain due to cerebral hemiplegia, [Bombi] 1541—ab
  - protective devices for heart, 867—E
  - renal, [Hess] 895—ab
  - thoracic, cures Raynaud's disease, [Kolodny] ★1020
- SYMPATHICOBLASTOMA, of thigh, [Jacobsen] 689—ab
- SYMPHYSIS PUBIS, roentgen examination in women, [Dale] 1060—ab
- SYMPTOM-triad, postclimacteric, [Gram] 312—ab
- SYNCOPE, cardiac, grave, recurrent, [Roskam] 301—ab
  - cardiac, mechanism of death due to, 916
  - chloroform, secondary, treatment, [Garrelon] 455—ab
  - due to pneumothoracic insufflation, [Bonanno] 1136—ab
  - mechanism, rôle of return circulation, [Laubry] 1134—ab
  - sign of congenital syphilis? 1608
- SYNDACTYLISM, [Davis] 623—ab
- SYNOVECTOMY of knee, end-results, [Boonitt] 1779—ab
- SYNOVIAL ADHESIONS, roentgen diagnosis by disodium salt of tetraiodo-orthosulphobenzoic acid, 1749—E
- SYNOVIAL FLUID in arthritis, [Shands] 1129—ab
  - in health and in disease, [Forkner] 1378—ab
- SYPHILIS: See also Buboes; Gumma; Neurosyphilis; under names of organs, regions and diseases
  - acute, Bismarsen for, [O'Leary] 1620—ab
  - angina pectoris and, [Schlesinger] 237—ab
  - arsphenamine-paratherapeutic jaundice, [Gjessing] 1060—ab
  - Cardiovascular: See Cardiovascular Disease
  - celialgia, [Turrits] 1034—ab

SYPHILIS—Continued
  Cerebrospinal: See Neurosyphilis
  complications, cancer and tularemia, [Minehart] 1867—ab
  congenital and acquired, heart and aorta in, [Kurtz] 440—ab, 1697—ab
  congenital, cause of heart disease, [McCulloch] 1698—ab
  congenital, clavicle enlargement sign of [Higoumenakis] 1627—ab
  congenital, crusade against, 355
  congenital, diagnosis, 1608
  congenital, endocrine disorders from, [Behdjet] 1054—ab
  congenital, heart disease in children from, [Givan] 556—ab, 1697—ab
  congenital, heart in, [Previtali] 555—ab, 1697—ab
  congenital, in institution for feebleminded, [Woodall] 445—ab
  congenital, prenatal prevention, [Wile & Shaw] ★1791
  congenital, purulent meningitis in, [Fornara] 561—ab
  congenital, serologic reactions negative, 1600
  congenital, spontaneous nystagmus in, [Asherson] 1780—ab
  congenital vs. juvenile dementia paralytica, [Menninger] ★1499
  control demonstration, 1753
  control, physical examinations before marriage, Turkey, 1360
  controversies regarding, [Guy] ★979
  corymbose, of scalp, [Sabouraud] 236—ab
  crusade against, Congo region, 355
  Diagnosis: See also Syphilis, serodiagnosis
  diagnosis, false, 1277
  experimental, Wassermann reaction in, [Thomsen] 1546—ab
  gastro-intestinal ulcers, 615
  heart in; electrocardiogram and teleroentgenogram, [Maynard & Ingraham] 441—ab
  in child aged 4½ years, treatment, 288
  in children, Kahn reaction in, [Manace] 689—ab
  in infants, [Wile & Shaw] ★1793
  in puerperal patient, 1932
  incidence, 682; [Guy] ★797
  incidence, rural, 871
  iodine metabolism and thyroid in, [Blach] 310—ab
  late, chronic anterior uveitis in, [Beigelman] ★1658
  meningovascular, 1525
  mortality from, [Guy] ★980
  nostrum, Solomon Whitfield Smith's Venereal Medicine, 1606—BI
  present-day, 279
  problem in tuberculosis clinic, [Greer] 1862—ab
  prevention, first aid at children's playgrounds, 1032
  relation to hypertension, [Horine] 555—ab; 1697—ab
  Serodiagnosis: See also Kahn; Wassermann; etc.
  serodiagnosis, complement fixation test in amebic infections, [Craig] ★10
  serodiagnosis, positive Wassermann reaction in pregnancy sign of syphilis? 1196
  serodiagnosis, precipitation tests, [Eagle] 1863—ab
  serodiagnosis, S. R. Reaction, [Sciarra] 378—ab
  serodiagnosis, sensitiveness of complement-fixation tests, [Havens] 1206—ab
  serologic tests response to treatment, [Gilman] 1205—ab
  tardive heredosyphilis, bone lesions in, [Pendergrass] 1290—ab
  tertiary, of liver simulating Banti's syndrome, [Korns] 368—ab
  Treatment: See also Syphilis, congenital; Syphilis in children
  treatment, abortive, [Wilén] 904—ab
  treatment, arsenical, unusual reaction following, [Black] 160—ab
  treatment, arsphenamine, toxic injury of granulocytic apparatus, [Meyer] 701—ab
  treatment, bismarsen, [Shivers] 1205—ab; [O'Leary] 1620—ab
  treatment, bismuth, [Miller] ★467
  treatment, bismuth, clinical excretion, [Hanzlik] 1205—ab
  treatment bismuth, in Fournier's clinic, [Schwartz] 1702—ab
  treatment, bismuth tartrate intravenously, sudden death after, [Curtis] ★1588
  treatment (early) by practitioner, [Kerl] 1218—ab
  treatment, mercuric salicylate in oil, embolism after, [Skolnik & Nomland] ★1742
  treatment of Wassermann fast, 432; 1525
  treatment, postarsphenamine dermatitis, [Robinson] 966—ab
  treatment, prenatal, [Wile & Shaw] ★1791
  treatment, Quinine Bismuth Iodide, 797
  treatment, sodium potassium bismuthyl tartrate, 797
  treatment, Tarto-Quiniobine, 797

SYPHILIS—Continued
  treatment, tellurium, [Frazer] 758—ab
  treatment, Thio-Bismol, 200
  virus, localization in aorta, [McMeans] 439—ab; 1697—ab
  Wassermann negative and, 1609
SYPHILOLOGY, International Congress of, 422
  Italian society of, 279
  state section on, Michigan, 1433
SYRINGE, hypodermic, sterilization, 433
  pistons that stick in, 1113
SYRINGOMYELIA, surgical intervention in? [Frazier] ★1911

SOCIETIES

Acad.—Academy
Am.—American
A.—Association
Coll.—College
Conf.—Conference
Cong.—Congress
Conv.—Convention
Dist.—District
Hosp.—Hospital
M.—Medical
Internat.—International

M.—Medical
Med.—Medicine
Nat.—National
Phar.—Pharmaceutical
Phys.—Physicians
Rev.—Revision
Ry.—Railway
S.—Surgical
Soc.—Society
Surg.—Surgery, Surgeons

Aero M. A. of the United States, 421, 1029
Am. Acad. of Ophthalmology & Otolaryngology, 1514
Am. A. of Cancer Research Workers, 872
Am. A. of Mental Hygiene Executives, 136
Am. A. of Obstetricians, Gynecologists & Abdominal Surgs., 805, 1274
Am. A. of Ry. Surgs., 1274, 1598
Am. A. of School Phys., 873, 1843
Am. A. for the Study of Goiter, 736
Am. Catholic Hosp. A. of the United States & Canada, 736
Am. Chemical Soc., 736
Am. Coll. of Surgs., 805
Am. Cong. of Physical Therapy, 511, 1029
Am. Dermatological A., 136
Am. Heart A., 438
Am. Hosp. A., 873, 1753
Am. M. A. of Vienna, 669
Am. Neurological A., 275
Am. Ophthalmological Soc., 55
Am. Pediatric Soc., 275
Am. Physical Therapy A., 1435
Am. Proctologic Soc., 541
Am. Protestant Hosp. A., 671, 1435
Am. Psychiatric A., 136
Am. Public Health A., 873, 1597, 1843
Am. Roentgen Ray Soc., 209, 1108
Am Soc. of Clinical Pathologists, 421, 600, 1355, 1843
Am. Soc. for the Control of Cancer, 872
Am. Soc. for the Study of Disorders of Speech, 136
Am. Student Health A., 736
Am. Therapeutic Soc., 805
Am. Urological A., 275, 603, 1598
Army Military Surgs. A. of the United States, 1031
A. of Am. M. Coll., 873, 1356
A. of Am. Phys., 71
A. of French Speaking Phys. of North America 1754
A. of M. Instruction of the Paris Hosp., 737
A. of M. Record Librarians of North America, 1029
A. of Military Surgeons of the United States, 1843
A. for the Study of Allergy, 293
A. for the Study of Internal Secretions, 351
British M. A., 209, 512, 513, 805, 1029, 1107, 1274
British Red Cross Soc., 1515
Brussels M. Conv., 1759
Canadian M. A., 209, 943
Central A. of Obstetricians & Gynecologists, 603
Central Soc. for Clinical Research, 1842
Central States Pediatric Soc., 1356
Chicago Gynecological Soc., 1510
Chicago Heart A., 1511
Chicago Soc. of Allergy, 1677
Children's Hosp. A. of America, 1356
Clinical Cong. of the Connecticut State M. Soc., 348
College of Physicians of Philadelphia, 1187
Colorado Cong. of Ophthalmology & Otolaryngology, 272
Colorado State M. Soc., 272, 1026
Conf. on Maternal Mortality, 1599
Conf. on New Bureau of Narcotics, 671
Conf. of State Sanitary Engineers, of Texas, 873
Cong. of Balneology, Berlin, 62
Cong. of Dermatologists, Italy, 279
Cong. of French Phys., 805
Cong. of French-Speaking Phys., 875
Cong. of Gynecology and Obstetrics, Belgium, 1602
Cong. on Metabolism, Berlin, 1601, 1603
Cong. on Occupational Accidents and Diseases, Rome, 60
Cong. of Ophthalmology, Paris, 59, 353
Cong. of Otoneuro-Ophthalmologic Soc., Belgium, 1439
Cong. of Plastic Surgery, 1358
Cong. of Psychopathology & Psychology, Vienna, 675
Far Eastern A. of Tropical Med., 873, 1360
Federation of Am. Societies for Experimental Biology, 1274
Florida Railway Surgs. A., 418
French Cong. of Hygiene, 1600
French Cong. of Orthopedics, 1846
French Cong. of Otorhinolaryngology, 1924
French Cong. of Surgery, 1029, 1516
French Cong. of Urology, 1029, 1845
French Soc. of Reparative, Plastic & Aesthetic Surg., 873
General A. of French Phys., 353
Georgia, M. A. of, 75
German Pharmacologic Soc., 1114
German Soc. for Light Research, 1029
German S. Soc., 61
Idaho State M. A., 600
Indiana State M. A., 348, 731, 1184, 1353, 1597
Indiana Tuberculosis A., 940
Industrial Hygiene Soc., Germany, 1520
Internat. Antitrachoma Organization, 878
Internat. Assembly of Army M. Services, 1439
Internat. Birth Control Union, 1031
Internat. Conf. on Tuberculosis, 1926
Internat. Cong. of Anatomists, 737
Internat. Cong. of Biology, 356
Internat. Cong. of Comparative Pathology, 873
Internat. Cong. of Cytologists, 281, 422, 737
Internat. Cong. of Dermatology & Syphilology, 422
Internat. Cong. of the History of Med., 805
Internat. Cong. of Hydrology, Climatology & M. Geology, 671
Internat. Cong. of Individual Psychology, 1362
Internat. Cong. on Malaria, 606, 1438
Internat. Cong. of Microbiology, 422, 542, 673, 1190
Internat. Cong. of Military Med. & Pharmacy, 140, 281, 737
Internat. Cong. of Neurologists, 424, 737
Internat. Cong. of Orthopedic Surgery, 1925
Internat. Cong. of Radiology, 421
Internat. Cong. of the World League for Sexual Reform, 603, 1191
Internat. Hygiene Exhibition, 56, 1684
Internat. Pediatric Cong., 351
Internat. Professional A. of Phys., 1925
Internat. Red Cross Committee, 1436
Internat. Soc. of Experimental Phonetics, 873
Internat. Soc. of M. Health Officers, 873
Internat. Stomatological Cong., 873
Internat. Tuberculosis Cong., 879
Internat. Union Against Trachoma, 422
Inter-State Post Graduate M. A. of North America, 351, 1438
Italian Cong. of Anatomy, 546
Italian Cong. of Legal Med., 809
Italian Cong. of Nepiology, 947
Italian League for Combating Cancer, 737
Italian Soc. of Laryngology, Otology & Rhinology, 1029
Kansas City Soc. of Ophthalmology & Otolaryngology, 1678
Kansas City Southwest Clinical Soc., 601
Kentucky State M. A., 601, 1271, 1353, 1595
League for Combating Venereal Disease, Paris, 1846
League of Nations, 736, 1751
Maine M. A., 54
Massachusetts M. Soc., 54
M. Library A., 275
M. & S. A. of the Southwest, 541
Mexican Cong. on the Prevention of Blindness, 1435
Michigan State M. Soc., 419, 668, 1105, 1433
Minnesota State M. A., 349
Mississippi Valley Conf. on Tuberculosis, 736
Mississippi Valley Sanatorium A., 736
Missouri State M. A., 150
Missouri Valley, M. Soc. of the, 1026
Montana State M. A., 274
Nat. Committee for Mental Hygiene, 274, 1512, 1597, 1680
Nat. Conf. of Social Work, 55
Nat. Conf. on Nomenclature of Disease, 1752
Nat. Cong. of Med., 547
Nat. Cong. of M. Radiology, 607
Nat. Cong. of Surg., 1847
Nat. Formulary Sixth Rev. Committee, 209
Nat. Fraternal Cong. of America, 601
Nat. M. A., 736, 805
Nat. M. Cong., 1683
Nat. Safety Council, 805
Nat. Soc. for the Prevention of Blindness, 943, 1356, 1514, 1842
Nebraska A. of M. Women, 135
Nebraska State M. A., 135, 1027
Netherlands Cong. of Rural Hygiene, 949
Nevada State M. A., 1186
New England Heart A., 1511
New England S. Soc., 1353
New Jersey, M. Soc. of, 420
New York Acad. of Med., 349, 540, 1106, 1272, 1435, 1842, 1921

Societies—Continued
  New York, M. Soc. of the County of, 1354
  New York, M. Soc. of the State of, 669, 1186
  New York Tuberculosis & Health A., 207
  North Dakota State M. A., 804, 1513
  Oklahoma State M. A., 55, 1679
  Oregon State M. Soc., 208, 669, 735, 1272
  Pacific Coast Oto-Ophthalmological Soc., 671
  Pan American Child Cong., 943
  Paris Cong. of Legal Med., 808
  Pennsylvania, M. Soc. of the State of, 872, 1434
  Philadelphia County M. Soc., 1513
  Philadelphia Pediatric Soc., 1272
  Polish M. & Dental A., 1356
  Radiological Soc. of North America, 1680
  Roumanian Cong. of Otorhinolaryngology, 737
  Saginaw Valley Acad. of Ophthalmology, 207
  Seaboard M. A., 1598
  Soc. for Digestive & Metabolic Diseases, Budapest, 1029
  Soc. of Am. Bacteriologists, 1274
  Soc. of German Neurologists, 1603
  Soc. of German Scientists & Phys., 1442
  Soc. for the Study of Asthma & Allied Conditions, 1680
  South Africa, M. A. of, 1112
  South Dakota State M. A., 1513
  Southeastern S. Cong., 603
  Southern M. A., 1356, 1595
  Texas Public Health A., 1680
  Texas A. of Sanitarians, 873, 1680
  United States Live Stock Sanitary A., 1681
  Upper Peninsula Conf. on Public Health & Tuberculosis, 941
  Upper Peninsula M. Soc., 601
  Utah State M. A., 670, 1434
  Vermont State M. Soc., 1434
  Virginia, M. Soc. of, 1187, 1513
  Virginia Pediatric Soc., 1187
  Washington State M. A., 670, 1187
  Western S. A., 275, 1274
  West Virginia M .A., 1753
  White House Conf. on Child Health, 1514, 1598
  Wisconsin State M. Soc., 421, 1273
  Women's M. Soc. of the State of New York, 420

T

TABES DORSALIS, Argyll Robertson pupil, [Hall] ★703
  in parents vs. neurosyphilis in children, [Dennie] ★1572
  involving, sympathetic, [Riser] 455—ab
  Romberg sign, [Hall] ★703
  treatment, 955
  treatment, fever induced by Spirochaeta hispanicum, [Remlinger] 455—ab
  treatment of eyes in, 747
TACCONE Test: See Cerebrospinal Fluid
TACHYCARDIA, paroxysmal, 64; 1854
  paroxysmal, an allergic disease? [Luria] 1385—ab
  paroxysmal, bundle-branch block in healthy young people prone to, [Wolff] 1125—ab
  paroxysmal, of supraventricular origin of digitalis in, [Wilson] 443—ab
  paroxysmal, surgical risk in, [Butler & others] ★85
TAENIA: See Tapeworm
T A F for diphtheria immunization, [Nassau] 307—ab
TAKATA-ARA Test: See Cerebrospinal Fluid
TALCUM: See also Dusting Powder
  mixer of, pneumonoconiosis or pulmonary hemorrhage in, 684
TALENT, musical, cerebral localization of, 879
TALKING: See Speech
  Films: See Films
TAMPON, cotton, in place of pad during menstruation, 747
TANNIN: See Acid, tannic
TAPEWORM, *anthelmintic action of pyrethrum*, 278
  broad, causes of increased incidence in, [Vergeer] ★1579
  human, rare, Taenia confusa, [Faust] 1620—ab
  isolation of chemical fractions of Taenia saginata, 954
  rat (Hymenolepis diminuta), human infestation, [Clark] ★1342
  removal in pregnancy, 1041
  treatment for Taenia saginata, 954
TAPPING treatment of brain abscess, [Steegmann & Karnosh] ★410
TAR Cancer: See Cancer, tar
  McLean's Tar Wine Cough Balm, 1606—BI
  on streets as cause of cancer, [Lehmann] 1950—ab
TARIFF, changes in, of interest to physicians, 43; 50
  huge duty, imposed on X-ray apparatus, 425
TARSUS: See also Scaphoid Bone, tarsal
  tuberculosis, [Sinding-Larsen] 978—ab
TARTO-QUINIOBINE, 797
TASTE, losing sense of, in influenza, [Crämer] 902—ab
  nerve fibers transmitting sensation of, [Lewis] 824—ab
  sense of dependent on sense of smell? 1855
TATTOO marks, removal (Variot method, etc.) 1763
  scalpel surgery for, [MacKee & Stone] ★1317
TAX: See also Tariff
  "la patente," reduced, on physicians, France, 875
  on prostitutes abolished, Turkey, 1984
  saving on earned income, 43; 50
TAXIS, for intussusception, [Lovset] 382—ab
T C F reaction, [Ogden] 1862—ab
TEA, for invisible writing, [Langen] 1628—ab
TEACHERS: See also Professors
  Hygeia for, 1680
  tuberculosis among, France, 1189
TEACHING: See Education, Medical, teaching
TEAR DUCT, dacryocystitis; dacryostenosis, [Kuhlefelt] 1060—ab
TEETH: See also Dental; Dentistry: Gums; Jaws; Medicolegal Abstracts at end of letter M
  abscessed, urticaria and angioneurotic edema from, [Ramirez & Eller] ★1081
  appearance, after using viosterol, [Hess & others] ★323
  caries, 877; [Bunting] 1373—ab
  caries and diet, 1915—E
  cavities in tonsillectomized and non-tonsillectomized, [Kaiser] ★839
  deciduous decay, in children, [Gay] 75—ab
  defects, in school children, Cape Province, South Africa, 1440
  dentigerous cyst of antrum of Highmore, [Harris] 1455—ab
  extraction, endocarditis after, [Kapsinow] ★409
  extraction, treatment of hemorrhage after, 1447
  infected, and menstrual disorders in adolescents, [Lawrence] ★1148
  infected, extraction, agranulocytic angina, 1428—E; [Brown] 1988—C
  infected, gonorrheal spurs a misnomer, [von Lackum & Palomeque] ★472
  International Exposition of Dental Hygiene, 1033
  permanent bridge, burning of roof of mouth from, 1366
  supernumerary, and gastro-intestinal disorders, [Friedenwald] ★905
TELANGIECTASIS, cutaneous, [Canale] 1460—ab
TELEPHONE, intercontinental transmission of heart sounds by, 1276
TELEROENTGENOGRAM, in early syphilis, [Maynard & Ingraham] 441—ab
TELLURIUM, copper sulphate medium for diphtheria bacilli, [Allison] 1297—ab
  treatment of syphilis, [Frazer] 758—ab
TEMPERAMENT, equipment of childhood, [Richards] ★1014
  schizothymic, 1576—ab
TEMPERATURE: See also Baths; Climate; Cold; Heat; Seasons; Weather
  adjustment of man and animals to, [Martin] 1458—ab
  wet-bulb, importance of for recording summer heat, 875
TEMPERATURE, BODY: See also Fever
  high, common compounds of carbon, [McDowall] 827—ab
  high, hyperthermia, action of amniotic fluid on, [Giordanengo] 974—ab
  high, postoperative death with hyperthermia in infants, [Riser] 972—ab
  of skin in relation to sensation of comfort, [Ward] 753—ab
  protracted postoperative effect on arteries, [Ipsen] 461—ab
  reaction after subtotal thyroidectomy, [Lerman] 895—ab
  slight rise in infant, significance, 1608
  variations in blood pressure, 666—E
TEMPLE UNIVERSITY, 350; 420
TENDON: See also Tendovaginitis; Tenosuspension
  free periosteal transplants wrapped around, [Bürman] 825—ab
TENDOVAGINITIS, stenosing, cause of arthritis deformans, [Winterstein] 831—ab
TENIA: See Tapeworm
TENNIS elbow, [Stewart] 221—C
TENOSUSPENSION operation for, habitual dislocation of shoulder, [Henderson] ★1653
TENTORIUM, splitting in new-born, [Chase] 626—ab
TERATOMA, of brain, [Hosoi] 370—ab
  of internal genitals in tubular hermaphrodite, [McCrea] 968—ab
  of vagina, diagnosis, 66
TERMINOLOGY: See also "Words and Phrases" under Medicolegal Abstracts at end of letter M
  advocated in describing functional disorders of menstruation, [Novak] ★1221
  agranulocytic angina, 1428—E; [Brown] 1988—C
  allergy, [Rackemann] 293—ab
  anaphylaxis, immunologic paradoxes, 417—E
  anaphylaxis, introduction of word, 1988—C
  conference to reorganize disease terminology, 1752
TERMINOLOGY—Continued
  eyestrain, [Derby] ★913
  International Committee to Standardize Nomenclature and to Prepare Tables in Crystal Analysis, 422
  meaning of abnormal, 323—ab
  myocardosis, [Wolffe] 361—C
  nephritis or nephrosis, 221
  of heart disease, [Herrick] ★1631
  pernicious anemia of pregnancy, [Helm] 311—ab
  plural of leptospira, 1933
  plurals of nouns ending in "itis," 287
  ptomaine poisoning, 36—E
  Quincke's or Bannister's disease? 684
  renal rickets—an undesirable designation? 116—E
  "staphylocine," [Greenbaum & Harkins] 815—C
  vitamin, 798—E
  who should hold title of "professor"? 1685
TEST: See also Blood; Cerebrospinal Fluid; Skin; Tuberculin; etc.
  tube diagnosis and prognosis, 733—E
  tube vaccines, 597—E
TEST X OAKITE, optic atrophy from, 955
TESTICLE: See also Epididymis; Epididymitis
  chorio-epithelioma, [Scheftel] 1706—ab
  correlation between parts of organism and, [Retterer] 1135—ab
  diathermy, technic, [Kowarschik] 311—ab
  ectopia testis perinei, [Robertson] ★191
  extract, Lydin, 201
  grafting, 203—E; [Thorek] 550—C
  grafting from monkeys into man, [Schleyer] 210—ab
  hormone excreted by kidneys, 203—E; [Thorek] 550—C
  tumor, bilateral, [Wollheim] 693—ab
  tumors in identical twins, [Champlin] ★96
TESTIMONIAL for a tooth paste by New York health commissioner, 1267—E; 1268—E
  industry, Ironized Yeast Company sends out a feeler, 679—BI
  posthumous, by J. R. Kimber regarding Sargon, 285—BI
  Vreelands quackery again; Dr. Cannon explains his testimonial, 219—BI; 613—BI
TESTIMONY: See Evidence; and under Medicolegal Abstracts at end of letter M
TEST-MEAL: See Stomach contents examination
TETANUS, after gunshot wound, 1117
  cephalic, recovery after, 609
  cerebral, vaccination against, [Mutermilch] 1133—ab
  complicating traumatic amputation of thigh, [Pennoyer] ★342
  fatal in children under 5, [Aikman] ★1662
  immunization, insoluble precipitates in, [Glenny] 1131—ab
  treatment, phenol intravenously, [Stroul] 161—ab
TETANY: See also Spasmophilia
  after exercise, [Lawrence] 1131—ab
  experimental and postoperative, [Christ] 1139—ab
  in infants, [Clein] 1699—ab
  in infants ultraviolet ray dosage for, [Bakwin & Bakwin] ★396
  in new-born, [Shannon] 756—ab
TETIOTHALEIN sodium, accident in swallowing capsules, [Heuser] 1058—ab
  sodium, in cholecystography, [Moore] ★1957
  sodium in gallbladder visualization in jaundice, [Rudisill] ★1125
TETRA-ETHYL LEAD, burn in laboratory worker, 1146
  regulation concerning ethyl gasoline, 209
TEUCRIUM scordium, Stroopal fraud, 1037—BI
THALASSOTHERAPY, 740; 1928
  for disorders of ear, 280
  Sea-Side Research Institute, Japan, 425
THALLIUM acetate, epilation in tinea in children, [Mateos] 698—ab
THAYER, GILBERT, food faddist, 913
THAYER, WILLIAM SYDNEY, A. M. A. medal presented to, 118
THEFT: See Stealing
THEOBROMA, oil of, in suppository anesthesia, [Fryszmann] 1541—ab
THEOCIN, Tablets Theocin, 1½ grains, 343
THEOMINAL for essential hypertension, [Ayman] ★247
THEOPHYLLINE, Tablets Theocin, 1½ grains, 343
THERAPEUTICS. See also Cults; Diathermy; Diet, therapeutic; Exercise, therapeutic; Fever, therapeutic; Occupational Therapy; Proprietary; Roentgenotherapy; Serotherapy; Vaccine Therapy; etc.
  alcohol in, 672
  American Therapeutic Society, 805
  attempt to reintroduce viper as medicament, 212
  interferential theory, 1113
  nonspecific, [Miller] ★461
  practitioner's need of intelligent skepticism, [Christian] 273—ab

THERAPEUTICS—Continued
  surgical, and mechanophysiotherapy, [Apostoleano] 1135—ab
  venoclysis, [Hendon] ★1175
THERMOCAUTERY for malignant bladder tumors, [Stutzin] 1545—ab
THERMOCOAGULATION: See Diathermy, surgical
THERMOMETERS, clinical, checking, A. M. A. resolution on, 47; 49
  injuries from, [Windfeld] 458—ab
THIGH: See also Hip Joint
  amputation, vertebral column disorders after, [Karfiol] 1386—ab
  amputation, traumatic, [Pennoyer] ★342
  cutaneous reflex hyperalgesia, in adnexitis, [Jersild] 1464—ab
  meralgia paresthetica, [Bergsma] 371—ab
THINNESS, eat and stay thin, 1182—E
  lean types of dyspituitarism, 1633—ab
THIO-BISMOL, 200
THIOCYANATE: See Sulphocyanate
THIONIN in intestinal brucella infection, [Leavell & others] ★860
THIOSULPHATE: See Gold; Sodium thiosulphate
THOMAS'S operation for breast tumors, [Greenwood] 628—ab
THORACIC Ganglionectomy: See Ganglionectomy
THORACOPLASTY: See also Tuberculosis, *Pulmonary*
  effect on respiration, [Feiermann] 307—ab
THORAX: See also Hydrothorax; Pneumothorax
  diseases iodized poppy-seed oil in diagnosis, 145
  drainage of purulent tuberculous pleurisy, [Toussaint] 973—ab
  empyema, treatment, [Singleton] 369—ab; [Foster] 961—ab
  physical signs in neoplastic and other lung diseases, [Jackson] ★639
  thoracic stomachs, [Adams] 1032—ab
  wall, tumor associated with trauma, [Morton] 295—ab
THORIUM dioxide solution in roentgen study of liver and spleen, 1761
  for lymphogranulomatosis, [Aubertin] 828—ab
THORPE'S isolation of histamine, 1101—E
THREAD, silk, use in ureteral stone dislodger, [McKay] ★794
THREADWORMS: See Oxyuris
THROAT: See also Larynx; Neck; Tonsil; etc.
  disappearance of circulating ragweed pollen from, [Cohen] 293—ab; 1456—ab
  in sword swallowers, 139
  infections, acute, and bacteremia, [Ballenger & others] ★1828
  Sore: See also Angina; Tonsils, infected
  sore, before and after tonsillectomy, [Kaiser] ★838
  sore clinical relation to scarlet fever, [Riskin] 637—ab
  sore, milk-borne outbreak, [Lane] 965—ab; 1598
  sore, septic, culture medium for Streptococcus epidemicus of, [Pilot] ★264
  sore, septic, in Kingston, 1354
  sore, septic, outbreak, New York, 274; 871
  specialists, new mask that protects, [Mellinger] ★662
THROMBAGOGE, new apparatus for transfusion, [Neubauer] 83—ab
THROMBO-ANGIITIS OBLITERANS, blood volume reduced in, [Silbert] 229—ab
  "nail symptom," [Schlesinger] 902—ab
  pathologic similarity to endemic ergotism, *[Kaunitz] 157—ab*
  treatment, alcohol injected into nerve roots, [Stern] 1775—ab
  treatment, contradictory results from supra*renalectomy, 1031*
  treatment, cured by hypertonic salt solutions intravenously and abstention from tobacco, [Ireland] 646—ab
  treatment, protein, [Miller] ★465
  treatment, ramisection, [Royle] 1780—ab
THROMBOCYTES: See Blood platelets
THROMBOPENIA: See Blood platelets
THROMBOPHLEBITIS migrans, [Ryle] 1537—ab
THROMBOSIS: See also Embolism
  abdominal aorta, [Hamilton] 162—ab
  carotis interna, [Brandberg] 312—ab
  coronary, [Conner] 1125—ab; [Peel] 1701—ab
  coronary, in angina pectoris, [Wilson] 1049—ab
  coronary, management and complications, [Brown]' 1049—ab
  coronary, surgical risk in, [Butler & others] ★85
  femoral, diagnosis, [Olow] 832—ab
  hepatic, [Seligman] 77—ab
  in labor, [Polak] 1774—ab
  incidence in Leipzig, [Sarafoff] 1784—ab
  infarction from pulmonary arteriosclerosis, [Invernizzi] 1783—ab
  mesenteric veins, [Jacobi] 1875—ab
  nature and causes, 1442
  pathogenesis, [Stuber] 901—ab
THROMBOSIS—Continued
  postoperative, apparatus to prevent, [Braithwaite] 1298—ab
  postoperative, early diagnosis, [Payr] 170—ab
  prevention, [Quant] 758—ab
  prophylaxis during puerperium, [Wachtel] 1059—ab
  sigmoid sinus and internal jugular vein, [Tunstall] 626—ab
  splenic vein, and splenomegaly, [Epstein] 1059—ab
  splenic vein, splenectomy for, [Vertán] 831—ab
  streak shaped growth inhibition of hair in, [Neuda] 1785—ab
  superior mesenteric vein, caused by ascaris, [Obadalek] 904—ab
  uninfected mural, of heart, [Harvey] 1289—ab
  vena cava (inferior), [Eilers] 241—ab
  weather effect on, [Fritzsche] 1625—ab
THUMB: See Fingers
THYMOL, to prevent spores in acetic acid solution for counting leukocytes, 817
THYMUS extract modifies basal metabolism, *[Schneider] 1303—ab*
  hypercrinic forms of obesity, [Faelli] 1459—ab
THYREOGLOBULIN, 599—E
THYROGLOSSAL DUCT cyst and sinus, [Snoke] 1861—ab
THYROID: See also Goiter; Goiter, Exophthalmic; Hyperthyroidism; Hypothyroidism
  acidophilic cells in, [Warren] 1296—ab
  cancer, skeletal metastases, [Levin] 1774—ab
  cartilage, dislocation of inferior cornu of, *[Pasternacki] 770—ab*
  diseases, radium in, [Ginsburg] 1291—ab
  echinococcus cysts, [Sabatini] 1703—ab
  Excision: See Thyroidectomy
  extract injection to determine constitutional *type of women, 530*
  function test, Kottmann's, [van Vessem] 301—ab
  functional disorders of menstruation, [Novak] ★1221
  heart, management, [Ruddock] 295—ab
  heart, transitory condition, [Thomas] 621—ab
  hormone influence in rickets, [Kay] 1049—ab
  hyperfunctioning, increased lactic acid formation in muscles, [Hoffmann] 1627—ab
  in pregnancy, [Reycraft] 1208—ab
  in syphilitics, [Blach] 310—ab
  in tonsillectomized and non-tonsillectomized children, [Kaiser] ★839
  influence in sterility, [Rowe] ★1219
  insufficiency in menstrual disorders in adolescents, [Lawrence] ★1148
  nostrum, Marmola, 359—BI
  preparations for reducing, [Grote] 828—ab
  proliferative activity vs. potassium iodide intraperitoneally, [Chouke] 1048—ab
  surgery, unusual problems in, [Walts] 76—ab
  surgery vs. larynx, [Nordland] 1866—ab
  surgery, what happens to suture material? [Christ] 1139—ab
  surgical mortality in hyperthyroidism, [Clute] ★389
  thyroxine and, 939—E
  treatment in hypothyroidism, [Warfield] ★1076
  treatment of essential hypertension, [Ayman] ★247
  treatment of myxedema in pernicious anemia, [Means] 74—ab
  treatment of obesity with impotence, 1690
  tumor, adenoma, cardiac accidents in, [Froyez] 1299—ab
  tumor, adenoma, unrecognized, [Gilman] 1290—ab
THYROIDECTOMY after radiotherapy for goiter, 741
  in acromegaly, [Kaufmann] 239—ab
  postoperative results in toxic goiter, [Clarke] 1127—ab
  reaction after vs. iodine metabolism, [Bier] 378—ab
  subtotal, technic for, [Pool] 301—ab
  subtotal, temperature reaction after, [Lerman] 895—ab
THYROIDITIS, acute, relapsing, [Becher] 903—ab
  [illegible] [Mora] 1373—ab
  [illegible] effect on gas-
  [illegible] 617—ab
  [illegible] Goiter, Exophthalmic
  sedimentation speed in, [Hufschmid] 1461—ab
THYROXINE, Ampuls Synthetic Thyroxine-Roche, 1.1 cc., 485
  eat and grow fat, 1182—E; 1507—E
  synthesizing, manufacturing chemists relinquish a patent, 276; 484
  Synthetic *Thyroxine*, 484; 485
  Tablets Synthetic *Thyroxine-Roche, 1 mg.*, 485
  thyreoglobulin and, 599—E
  thyroid and, 939—E
TIBIA, sarcoma, [Behring] 702—ab
TIC Douloureux: See Neuralgia, trigeminal
  of salpingopalatinus muscle causing sound audible, [Stoll] ★796
TICK, dog tick and typhus-like diseases, 869—E
  epidemic in Marseilles due to, 1846
TICK—Continued
  fever, African, in central Texas, [Weller & Graham] ★1834
  hosts of tularemia, 667—E
  wood tick, provisions against tularemia, 735
"TICKING" sound audible at 20 inches, came from left ear, [Stoll] ★796
TILLIAM operation, modified, for uterine prolapse, [Counseller & Stacy] ★983
TILTON Cancer Clinic closed, 601
TIMOTHY Pollen Allergen Solution-Squibb, *1913*
TIN, irradiated, in surgical conditions, [Ried] 1218—ab
  compounds, bactericidal and therapeutic, property, [Valentini] 1057—ab
  foil, danger of wrapping cheese in, 1188
TINEA: See Ringworm
TISSUES: See also Cancer; Chorio-Epithelioma
  connective, calcium in, [Cohn] 1875—ab
  connective, in pelvis, hemangioma of, [Frank] 754—ab
  cultivation, 674
  cultures, film on, 1603
  cultures, Lewis-Gregory moving pictures of, *1509—E*
  deficient carbon dioxide in, [Henderson] ★572
  electrocautery effect on normal, [Gottesman] 1943—ab
  growth, effect of diet on, 1183—E
  growth in warm blooded animals, 1187
  nontuberculous, types of tubercle bacilli in, [Aronson] 961—ab
  staining tubercle bacilli in, [Moss] 627—ab
  subcutaneous, local changes in, after insulin infections, [Eeg-Olofsson] 312—ab
  subcutaneous, ulceration after operation, [Freeman] 1778—ab
  subpatellar fatty, traumatic proliferation, [Sicard] 972—ab
  tolerance toward tin injections, [Valentini] 1057—ab
  Transplantation: See Transplantation
  Tuberculous: See Tuberculosis
TOBACCO: See also Cigarets; Nicotine
  abstinence from in cure of thrombo-angiitis obliterans, [Ireland] 646—ab
  effect of sympathetic stimulation on leukocyte count, 807
TOBEY-AYER TEST, [Tunstall] 626—ab
TODD, JOSEPH HENRY, honored, 1842
TOES: See also Nails
  coherence, syndactylism, [Davis] 623—ab
  nine, [Mayer] 825—ab
  pain in, diagnosis, 615
  supranumerary, with congenital deformity of hand, [Cooperman] 1779—ab
  what rôle does little toe play? 817
TOGGLESQUEEZE hemostatic forceps, [Littlejohn] ★1975
TOILET WATER dermatitis, [Lane & Strauss] ★717
  pigmentation from, 40—E
TOILETS: See Privy
TOLYSIN, liver atrophy from, [Rabinowitz] ★1229
TOMATOES, canned and fresh, vitamin C value, 614
  Curtice Brothers Certified Nursery Foods, 486
  home-canned, vitamin F (B_1) in, 682
  juice, vitamin C values, 433
  Kemp's Sun-Rayed Pure Tomato Juice, 1835
  mineral values, [Weston] ★834
TONGUE, acute swelling, 1446
  cancer, [Fischel] 152—ab
  congenital malformations, [Friedenwald] ★906
  motion pictures of person speaking whose tongue had been made visible, 217
  ossified, traumatic epithelial cyst on top of, [Pollack] 903—ab
  tuberculosis of, [D'Aunoy & Miller] ★97; 363; [Nicholas] 1139—ab
TONIC, Eleven Bros. Tonic, 952—BI
TONSILLECTOMY: See also Medicolegal Abstracts at end of letter M
  anesthesia, procaine hydrochloride, 614
  appendicitis after, [Ballenger] 823—ab
  deep cervical infection after, [Shapiro] 370—ab
  during and shortly after tonsillitis, [Levinger] 1788—ab
  effect on colds, [McLean] ★1339
  effect on rheumatic fever, [Robey] 79—ab
  emphysema of head and neck complicating, [von Hofe] ★934
  fever after, 817
  for acute cervical adenitis in children, [Baum] ★1829
  results, [Monroe] 158—ab; [Kaiser] ★837
TONSILLITIS: See Tonsils, infected
TONSILLOMYCOSES, [Castellani] 560—ab
TONSILS, disease, fungal, [Castellani] 560—ab
  diseases, roentgen treatment, [Schulte] 763—ab
  enlarged, roentgen treatment, [Schönfeld] *309*—ab
  foci, 1924
  ignipunct [illegible] 631—ab
  infected, [illegible] in adolescents, [illegible]
  infected, [illegible] 30—ab
  infected, gonorrheal *spurs a misnomer*, [von Lackum & Palomeque] ★472

TONSILS—Continued
  infected, results of tonsillectomy, [Kaiser] ★837
  infected, therapeutic effect on pre-existing epilepsy, [Guthrie] 1534—ab
  infected, tonsillectomy during and shortly after an attack of, [Levinger] 1788—ab
TOOTH: See Teeth
TOOTHPASTE: See Dentifrice
TOOTHPICK, perforates cecum, [McLanahan] ★1424
TOPHI, gout, [Lewy] 1058—ab
TORTICOLLIS, congenital, pathology, [Middleton] 1867—ab
  spasmodic, [Dandy] 230—ab; [Frazier] 369—ab
TOURS, of American physicians through France, 212; 424
  of welfare workers through Germany, 217
TOURNIQUET capillary resistance test, [Chalier] 1382—ab
TOWELS, hygiene, [Pease] 1047—ab
TOXEMIA due to food allergy, [Rowe] 1995—ab
  in intestinal obstruction, [Gosset] 235—ab
  intestinal, Bacillus dysenteriae Sonne, [Johnston] 967—ab
  intestinal, enteral infections in, [Johnston] 962—ab
  intestinal, relation to infected ear, [Wishart] ★1084
  intestinal, Sulphocol and Sulphocol Sol for, 594
  nostrum, Halanum, 951—BI
  of Pregnancy: See Pregnancy
  shock, [Atchley] ★385
TOXICODENDROL of poison ivy, [Lamson] ★663; [Stevens] 1762—C
TOXIN: See Diphtheria; Staphylococcus
  antitoxin floccules, [Nassau] 307—ab
  skin necrotizing, [Weise] 1607—C
TOXOID: See Diphtheria
TOYS, foreign bodies from, being swallowed by children, A. M. A. resolution on, (V. 94) 2073; 1103
TRACHEA, erosion, [Culotta] 456—ab
  Injection into: See Injection, intratracheal
TRACHEOBRONCHIAL Gland; Nodes: See Lymphatic System
TRACHEOTOMY, modification, [Russell] 1701—ab
TRACHOMA, among immigrants, Japan, 1034
  antitrachoma work, Turkey, 1359
  Bacterium granulosis in relation to, [Tilden] 1535—ab
  International Organization to Combat, 422; 878
  most disastrous diseases, 1034
  prevention, Illinois, 1104
  spread in Hungary, 1361
TRACTION method for femur fracture, [Clayton] 967—ab; Moorhead] ★1495; [Coonse] 1865—ab
TRADES: See Industrial
TRAIN: See Railroads
TRANSFUSION: See Blood Transfusion
TRANSLATORS, expert, 211
TRANSPLANTATION: See also Bone graft; Muscle; Patella; Periosteum; Skin graft; Testicle graft; etc.
  autotransplantation of fat in mammary gland atrophy, [Passot] 375—ab
  homoplastic, "taking" of, vs. nervous system, [Bartoli] 1625—ab
  "sieve graft," [Douglas] 301—ab
TRAUMA: See also Accidents; Disability; and under Medicolegal Abstracts at end of letter M; under names of diseases as Epilepsy; Meningitis; Neurosis; etc.; under names of organs and regions as Abdomen; Cranium; Intestines; Spine; Thigh; etc.
  bladder rupture from, [De Tarnowsky] ★476
  blood platelets changes after, [Willinsky] 234—ab
  cause of diabetes mellitus, [Veil] 307—ab
  cavernous hemangioma and, [Downing] 1205—ab
  effect on functioning of organs, [Marcus] 700—ab
  osteoporosis after, [Leriche] 375—ab
  pneumocephalus, [Rand] 230—ab
  proliferation of subpatellar fatty tissue, [Sicard] 972—ab
  relation of osteomyelitis to, 808
  sarcoma and, [Willan] 1868—ab
  shock, glycogenic functioning of liver in, [Scarpello] 1460—ab
  streptococcal infections of epiphyses and short bones and, [Phemister & others] ★995
  tumor of bony thoracic wall, [Morton] 295—ab
  vertebral arthritis in relation to, 809
TRAVELING: See also Tours
  Hygienic Museum, 880
  laboratories used in milk survey, New York, 941
TREATMENT: See Therapeutics
TREES, elm pollen complicating factor in hay-fever, *[Durham & Black]* 293—ab
  pollenosis, [Bernton] 301—ab
TREMATODES, in shrimps, [Du] 827—ab
  surgical diseases of bile tract caused by, [Finkelstein] 829—ab
TRENDELENBURG operation for pulmonary embolism, [Nystrom] 1776—ab
TRICHINA in pigs, 1847
  discovered by Dr. Joseph Leidy, [Ward] 1988—C
TRICHINOSIS, in California, 40—E
  made reportable, New York, 1354
  ocular manifestations, [Carter] ★1420
TRICHO SYSTEM, injuries from, [Lane] 286—C
TRICHOCEPHALUS dispar, rare syndromes, [Ranieri] 1057—ab
TRICHOMONAS, hominis infection, diagnostic complement fixation test in, [Craig] ★10
  vaginalis, [Faulkner] 1208—ab
TRICHOPHYTIN, urticaria and hay-fever from, [Wise & Sulzberger] ★1504
  test, epidermophytosis and pidermophytids of hands, [Highman] ★1158
TRICUSPID orifice, congenital atresia, [Breslich] 1206—ab
TRINITROPHENOL, dermatitis from, 1284
  for blood sugar determination, [de Jongh] 978—ab
TRIORTHOCRESYL PHOSPHITE: See Cresyl
TROCAR, Southey's, for edema, [Bland & White] ★1489
TROCHANTER, lesser femoral, epiphyseal separ*ation, [Lapidus] 825*—ab
TROPHISM, perverted, as probable cause of cancer, [de River] 372—ab
TROPICAL DISEASES: See also Sprue: Tropics
  Institute for, Dr. Nocht retires, Dr. F. Fulleborn new director, 611
TROPICAL MEDICINE, Far East Association of, 873; 877; 1360
  London School of, memorial to Manson, 351
  School of, Belgium, 354
  School of, Sydney, 56
TROPICS, cement-starch mixtures as substitute for plaster of paris in, [Taylor] 446—ab
  chronic colitis in, [Menon] 1053—ab
  eosinophilic hyperleukocytosis of tropical origin in child, [Armand-Delille] 696—ab
  gastric function in artificial tropical climate, [Borchardt] 458—ab
  scarlet fever is comparatively rare in, 664—E
  United Fruit Company report, 1108
TRYPAFLAVINE: See Acriflavine
TRYPAN RED will destroy trypanosomes, [Miller] ★468
TRYPANOSOMES, arsenicals effect on, [Miller] ★467
  trypan red will destroy, [Miller] ★468
TRYPANOSOMIASIS, control of tsetse fly, 277
  in Africa, 1031
  in Kamerun, 1275
  trap for the tsetse fly, 1757
TRYPSOGEN, therapeutic value, 615
TSETSE FLY, control of, 277
  trap for, 1757
TSUTSUGAMUSHI DISEASE, virus, [Nagayo] 1210—ab
TUBE holder, urine collection, [White] ★662
  Southey's, in edema, [Bland & White] ★1489
  test tube vaccines, 597—E
TUBER CINEREUM cells, [Poppi] 1950—ab
TUBERCLE, calcification by viosterol, [Spies] 157—ab
TUBERCLE BACILLUS bacillemia, 675; [Lowenstein] 1787—ab
  culture, 1839—E
  culture from urine, [von Húth] 300—ab
  demonstration by cultivation, [Sundt] 1060—ab
  detection in spinal fluid, Canti's method, [Grey] 694—ab
  heat-killed, inoculation, allergic reactions from, [Branch] 1206—ab
  Immunity: See Tuberculosis, immunity
  in Swiss cheese, [Sobernheim] 1783—ab
  infection and tuberculous ultravirus, 1760
  method of enrichment for researches on, [Vellcogna] 165—ab
  mutability, 879
  phagocytosis, [Westenrijk] 1877—ab
  staining in tissues cut by frozen section technic, [Moss] 627—ab
  type unusual in infantile pulmonary tuberculosis, [Beaven] 368—ab
  types in tuberculous lesions and nontuberculous tissue, [Aronson] 964—ab
TUBERCULIDS, ultravirus in blood, 1031
TUBERCULIN, human and bovine, Pirquet reaction made with, [Benvenuti] 376—ab
  injections, intrarenal arterial in normal and tuberculous animals, [Long] 689—ab
  Old Tuberculin Human Strain, Concentrated, 865
  reaction in prognosis of tuberculosis, [Lobban] 1538—ab
  reaction, percutaneous, preferable to cutaneous test, [Unshelm] 763—ab
  reaction, Pirquet, Moro and Mantoux, vs dermatubin test, [Goldberg] 755—ab
  reaction (skin) of nonspecific factors, [Eddy] 1773—ab
TUBERCULIN—Continued
  shock, blood viscosity in, [Gatto] 632—ab
  shock, sedimentation rate in, [Gatto] 457—ab
  Test: See also Pirquet; Tuberculin reaction
  test in advanced juvenile tuberculosis in children, [Opie] ★1154
  test, intradermal, [Maxwell] 969—ab
  treatment (intraspinal) in tuberculous meningitis, [Selter] 830—ab
  treatment of eye disease, [Wilkinson] 453—ab
TUBERCULOMA, eruption in lymphatic leukemia, [Busman & Woodburne] ★1253
  healed, of brain, [Paterson] 560—ab
  of left cerebellar hemisphere, [Jacarelli] 1872—ab
TUBERCULOSIS: See also Tuberculosis, Pulmonary; and under names of organs, regions and diseases
  Abscess: See Abscess, tuberculous
  acid-base balance in, [Varela] 1876—ab
  active and normal sedimentation reaction, [Torning] 764—ab
  allergy in, [Bell] 151—ab
  asthma and, [Diaz] 305—ab
  athletics contraindicated, 1447
  blood calcium (ionized) in, [Varela] 1876—ab
  blood in, rôle of leukocytes, [Brock] 227—ab
  bovine, 1598
  bovine; vaccination of cattle against, 875
  clinic, itinerant, Georgia, 803
  clinic, syphilis in, [Greer] 1862—ab
  complications, bronchopulmonary spirochetosis, 747
  complications, diabetes, insulin treatment, [Blum] 977—ab
  complications, exogenous secondary infections, 675
  complications, nephritis, [Labbé] 696—ab
  Congress in Hamburg, 55
  control, physical examination required before marriage, Turkey, 1360
  control, Regional Italian Congress of Pediatrics, 877
  control, Rome, 546
  control, Turkey, 1360
  control work, coordination in, 1752
  convention in Hamburg, 879
  course from generation to generation, [Andvord] 978—ab
  courses for physicians, Indiana, 940
  crusade against, 741; 1191; 1847
  crusade, state-wide, Alabama, 1810
  Diagnosis: See also Tuberculosis, serodiagnosis
  diagnosis, dermatubin test vs. Pirquet, Moro and Mantoux reactions, [Goldberg] 755—ab
  diagnosis, intracerebral method of inoculating guinea-pigs, [Magath] 1862—ab
  diagnosis, of surgical, [Tschmarke] 307—ab
  diagnosis, Petragnani method, [Accorimboni] 165—ab
  diagnosis, Pirquet reaction in young children, [Kjer-Petersen] 1878—ab
  diagnosis, Pirquet skin reaction and intracutaneous reaction, 352
  diagnosis, tuberculin shock in, [Gatto] 457—ab
  diagnosis, Vernes test [Risi] 237—ab; [Ralph] 454—ab
  diet in: See Tuberculosis, treatment
  diffused to abdominothoracic lymphatics, [de Benedetti] 1137—ab
  experimental, spleen size in, [Loránd] 310—ab
  fever (catamenial) in, 271—E
  finger nails in, 205—E
  healing, [Pottenger] 1454—ab
  heart in, [King] 1204—ab
  hereditary researches on, twins with, 427
  hospitalization (state) for, Massachusetts, 510
  immunity, acquired, [Wolff] 1785—ab
  immunity after using viosterol, [Hess & others] ★322
  immunity in, [Bell] 151—ab
  immunity, lipase and protease ferments used to confer, [Fontela] 306—ab
  immunity, mechanism, [Hedvall] 904—ab
  immunization, and acquired immunity, [Wolff] 1785—ab
  immunization, B C G, [Prokopowicz-Wierzbowska] 1056—ab; 1926
  immunization, B C G, experimental trials, [Ottolenghi] 1625—ab
  immunization, B C G, harmlessness in infants, [Chaussinand] 1133—ab
  immunization, B C G, in Kief, [Nechtadimenko] 1133—ab
  immunization, B C G, intramuscularly, in children, [Chaussinand] 1133—ab
  immunization, B C G, Lübeck disaster, 352; 356; 357; 676; 1034; 1761; 1927
  immunization, B C G, modified course of superinfection, [Noblen] 166—ab
  immunization, B C G, of nurses, [Heimbeck] 764—ab
  immunization, Langer vaccine, *[Brachman]* 823—ab

TUBERCULOSIS—Continued
  immunization, Netherlands, 1441
  immunization, Ponndorf's [Haase] 829—ab
  immunobiologic reaction in, [Thomas] 371—ab
  in animals, intrarenal arterial tuberculin injections in, [Long] 689—ab
  in anthracosis, 1033
  in childhood, [Iannè] 297—ab; [Schlesinger] 694—ab; [Kjer-Petersen] 1878—ab
  in children and youths, diet in [Starcke] 976—ab
  in children, eosinophilic behavior in, [Belloni] 1056—ab
  in children, medical aid, 1438
  in children, advanced infection, [Opie] ★1151
  in children, summer health schools, California, 802
  in children, suspected, [Eberson] 1773—ab
  in infants; separation of mothers from their infants, 875
  in medical students, [Heimbeck] 1306—ab
  in nurses in training school, [Meulengracht] 764—ab
  in pregnancy, [Matthews & Bryant] ★1707
  in students, university courses for, Germany, 282
  in teachers, France, 1189
  incidence, decline, [Cobbett] 162—ab
  industrial, 1033; 1937
  industrial, aid for tuberculous employees, Netherlands, 280; 1441
  infection in, modes, 879
  infection, monocytes and biohumoral reactions in, [Capuani] 974—ab
  infection vs. underweight, [Opie] ★1155
  information service formed, New York City, 1186
  International Conference on, 1926
  lesions, calcification by viosterol, [Levaditi] 695—ab
  lesions, tubercule bacilli in, [Aronson] 961—ab
  lymphoblastoma, Hodgkin's disease and, [MacMahon] 158—ab
  metabolism and nutrition in, 743
  mortality decline, cause, 713
  mortality decline, England 352 (correction) 1029
  mortality, decrease, France, [Bernard] 977—ab
  mortality increase during the war, [Cobbett] 162—ab
  mortality, in Oregon in 1929, 669
  mortality rate, high, District of Columbia, 1352
  mortality statistics for 1928, Netherlands, 948
  most disastrous diseases, 1034
  National Association for Prevention of Tuberculosis, 352; (correction) 1029
  nostrum, Numoss, 952—BI
  nursing technic in, 349
  of skin relation to tuberculosis of internal organs, [Wall] 241—ab
  patients, hospital beds for, 278
  pathogenesis, chemical view, [Long] 1862—ab
  pathologic anatomy, [Sternberg] 1876—ab
  prevention, England, 352; (correction) 1029
  prevention, outdoor movies, 207
  primary, in adults, [Arborelius] 1388—ab
  prognosis, tuberculin reaction in, [Lobban] 1538—ab
  public health and, [MacGregor] 1045—ab
  reinfection, study of, [Schnieder] 1954—ab
  resistance to, [Lange] 1387—ab
  rheumatic arthritis relation to, [Reitter] 1629—ab
  rheumatic iritis due to, [Verhoeff] ★583
  sanatorium additions opened, New Jersey, 1595
  sanatorium, Ingham County, Michigan, 871
  sanatorium, state, at Howell, Michigan, 941
  sanitary commission of Tokyo, 1360
  sanitary condition, Belgium, 140
  scholarship tour, 1107
  serodiagnosis, [Dufour] 1997—ab
  serodiagnosis, Caulfeild's inhibitive and T C F, [Ogden] 1862—ab
  serodiagnosis, complement fixation test, [Wadsworth] 1862—ab; [Terrell] 1945—ab
  surgical, bacteriologic diagnosis, [Tschmarke] 307—ab
  surgical, heliotherapy, 138
  surgical, iodized oil and calcium salts for, [Zalewski] 760—ab
  surgical, methylated antigen for, [Blankoff] 1624—ab
  surgical, Sauerbruch-Herrmannsdorfer diet, [Nathan] 1878—ab
  temperature changes during menstruation, [Jameson & others] ★13; [Weiss] 78—ab; 271—E
  tissue, fibril-forming power of epithelioid cells in, [Wallgren] 1080—ab
  transmission, [Nystrom] 621—ab
  treatment, calcium, [Hein] 166—ab
  treatment, calcium intravenously, [Reggiani] 1783—ab
  treatment, Catalysan Tomarkin, 1690

TUBERCULOSIS—Continued
  treatment, cod liver oil exposed to ultraviolet rays or ozone, [Bergman] 977—ab
  treatment, cod liver oil with phosphorus, [van Leersum] 829—ab
  treatment, diet, Gerson, 743; [Wolff-Eisner] 762—ab; [Wichmann] 762—ab; 879; [van *Leersum] 829—ab*; [Starcke] 976—ab
  treatment, diet, Gerson vs. Herrmannsdorfer, [Herrmannsdorfer] 170—ab
  treatment, diet, salt-free, [Herrmannsdorfer] 977—ab
  treatment, discussion on, 59
  treatment in men in military service, 278
  treatment, oxygen inhalations, [Okslusow] 1388—ab
  treatment, rôle of reticulo-endothelial system in, [Wedekind] 378—ab
  treatment, Spahlinger again, 1437
  treatment, tin compounds, [Valentini] 1057—ab
  treatment, vitamins A and D, [Pattison] 1052—ab
  ultravirus in blood of patient with tuberculids, 1031
  uncinariasis and, [Colby] 1129—ab
  urine in; creatinuria, [Thompson] 1617—ab
  Vaccine (B C G): See also Tuberculosis immunization
  vaccine, B C G, accidents attributed to, 138; 1761
  vaccine, B C G, return of virulence, 1761
  Vaccination: See Tuberculosis, immunization
  verrucosa cutis, scalpel surgery for, [MacKee & Stone] ★1317
  vitamins effect on. [Pfannenstiel] 169—ab
TUBERCULOSIS, PULMONARY adynamia in, vs. calcium, [Stein] 241—ab
  artificial pneumothorax before intrathoracic operations, 1985
  artificial pneumothorax, electrocardiogram in, [Perrin] 970—ab
  artificial pneumothorax in, 212; 545
  artificial pneumothorax in children, [Pachioli] 974—ab
  artificial pneumothorax in, indications, [Snider] 151—ab
  artificial pneumothorax in, plus phrenicectomy, [O'Brien] ★651; [Udaondo] 1382—ab
  asbestosis and, 1431—E
  blood albumin quotient, [Dufourt] 1055—ab
  blood, arterial tension in, [Diez Fernández] 1137—ab; [Leuret] 1214—ab
  blood calcium, viosterol effect on, [Kaminsky] 622—ab
  blood sedimentation test in, [Davies] 455—ab
  bone marrow functioning in, [Gosio] 1136—ab
  cavitation, [Blumberg] 1130—ab
  chronic, arterial tension in, [Diez Fernández] 1137—ab
  clinical value of monocyte count, [Finner] 227—ab
  complications, acne, [Griesbach] 1877—ab
  complications, diabetes, problem in, [Fitz] 891—ab
  complications, digestive tract tuberculosis is secondary to, 1032
  complications, exogenous secondary infections, 675
  complications, genital tuberculosis, [Lehmann] 636—ab
  complications, secondary tuberculosis of intestines, [Rubin] 823—ab
  diagnosis, intracutaneous reaction to resorcinol, [Marcialis] 1137—ab
  diagnosis of early, British Medical Association prize for essay on, 1029
  disinfection of linens after, 146
  etiology, dust, [Russell] ★1714
  etiology, dust inhalation and iron ore mining, [Collis] 1377—ab
  etiology of myocarditis, 953
  etiology, war gas poisoning, [Reiche] 379—ab
  hemoptysis, [Edel] 1303—ab
  hemorrhage of lungs, what percentage tuberculous? 684
  immunobiology in diagnosis and treatment, [Lilien] 1533—ab
  in children, 212; [Hempelmann] 152—ab; [Pachioli] 974—ab; [Moses] 1873—ab
  in children, insulin vs. protein metabolism in, [Mondini] 561—ab
  in general practice, [Wood] 1537—ab
  in infants due to unusual type of tubercle bacillus, [Beaven] 368—ab
  in infants, ulcerous form, [Guzzini] 975—ab
  in miners, ★1937
  in perihilus region, [Faber] 1954—ab
  in pregnancy, [Lydtin] 310—ab
  infiltrate in genesis of, [Zucali] 456—ab; [Tarantola] 456—ab
  infiltrates, early, [Dorendorf] 1953—ab
  miliary: curability, [Sachs] 1216—ab
  nostrum, Stevens Consumption Cure, 951—BI
  open, in children, [Moses] 1873—ab
  open, in families, [Hartmann] 977—ab
  patients, dreams of, [Hoke] 1629—ab
  phrenicectomy in, [Frank] 158—ab; [Matson] 622—ab; [O'Brien] ★650; [Hughes] 826—ab; [Geer] 894—ab; [Dumarest] 1213—ab; [Graf] 1216—ab

TUBERCULOSIS, PULMONARY—Continued
  phrenicectomy in *apical and subapical*, [Tapia] 306—ab
  phrenicectomy plus intercostal neurectomy for, [Alexander] 1862—ab
  phrenicectomy plus pneumothorax, [O'Brien] ★651; [Udaondo] 1382—ab
  phrenicectomy, respiratory mechanism after, [Werner] ★1162
  phrenicus exeresis with resection of scalenus muscles, [Els] 1545—ab
  Pirquet's cutaneous allergy in, [Parodi] 1056—ab
  reactions at focus in lung, [Leendertz] 900—ab
  roentgenographic picture in, 1518
  stomach, juice acidity in, [Rave] 1463—ab
  Surgical Treatment: See also Tuberculosis, Pulmonary, *phrenicectomy*; Tuberculosis, Pulmonary, thoracoplasty
  surgical treatment, [Decker] 895—ab
  surgical treatment of bilateral, [Dünner] 310—ab
  temperature in, menstrual fever in, [Jameson & others] ★13; [Weiss] 78—ab; 271—E
  thoracoplasty in, [Feiermann] 307—ab; [Borelius] 382—ab; [Sachs] 1216—ab; [Brown] 1862—ab; 1926
  tracheobronchial gland tuberculosis in childhood, [Hempelmann] 152—ab
  treatment, diet, Gerson's, [Parada] 306—ab; [Pohlmann] 308—ab; [Sachs] 762—ab
  treatment, diet, Herrmannsdorfer's, [Mecklenburg] 900—ab; 977—ab
  treatment, diet, salt-free, [Alexander] 829—ab
  treatment, irradiated cod liver oil and eosin, [Hildebrand] 622—ab
  treatment on line of mineral deficiency, [Fraser] 80—ab
  treatment, plug, [Sachs] 977—ab
  treatment, spleen extract, 545
  treatment, sulphur calcium inhalations, [Siegel] 166—ab
  treatment, viosterol, 424; [Kaminsky] 622—ab; [Scheurlen] 829—ab
  treatment, vitamin, [Scheurlen] 829—ab
  vital capacity estimation in, [Kutschera-Aichbergen] 1705—ab
TUCKER, GABRIEL, 1134
TUITION, medical school, ★506; 535—E
  raised at University of Michigan, 419
TULAREMIA, [Sanchez] 76—ab
  blood smear agglutination tests in, [Lewis] 559—ab
  coincident carcinoma and syphilis, [Minehart] 1867—ab
  contracted from coyotes, 1351—E
  hosts of, 667—E
  provisions against, urge public to avoid wood tick, 735
  venoclysis, [Hendon] ★1175
  Widal test and, 1040
TUMORS: See also under organs and under names of specific types of tumors
  age and sex distribution, [Pack] 297—ab
  among insane, [Davidoff] 1619—ab
  benign and malignant, surgery in, [MacKee & Stone] ★1315
  cells, serologic group differentiation, [Thomsen] 462—ab
  diagnosis, [Wood] ★1141
  formation in hernial sac, [Richard] 1139—ab
  giant cell, of bone, [Johnson] 1205—ab
  in identical twins, [Champlin] ★96
  induction with carbon dioxide snow, [Berenblum] 452—ab
  inoculation, growth vs. dry diet, [Ottensooser] 1788—ab
  Krukenberg's: origin, [Babes] 1134—ab
  Malignant: See also Adenocarcinoma; Cancer; Epithelioma; Sarcoma; etc.
  malignant, alkali reserve in, [Pacetto] 376—ab
  malignant, and their metastases, [McWhorter] 1292—ab
  malignant, biopsy on, [Hanser] 1951—ab
  malignant, blood cholesterol in, vs. radiation, [Mattick] 963—ab
  malignant, diagnosis, Italian League for Combating Cancer prize for, 737
  malignant, in an infant, [Kohlhaas] 1786—ab
  malignant, in Congo natives, 1033
  malignant, radium surgery for, 1442
  malignant, reaction in vicinity of, [Slaviero] 1301—ab
  malignant, removed by diathermy, [von Seemen] 240—ab
  malignant, roentgen treatment, [Juul] 638—ab
  metabolism of, [Dickens] 628—ab
  metabolism of patients with, [Donati] 237—ab
  metastases from placenta to liver, [Weber] 169—ab
  metastases of malignant plasmomas, [Jackson & Parker] 74—ab
  metastases of sacral chordoma, [Willis] 1946—ab
  metastases, of true umbilical tumors, [Holm] 382—ab

TUMORS—[illegible]
  [illegible] of liver, fetal dys[illegible] 78—ab
  metastatic, of eye, [Cordes & Horner] ★655
  mixed, of salivary glands, [Patey] 1868—ab
  mixed, of scalp, [Erb] 1138—ab
  radioactive bismuth activated in, injected into animals, 142
  research clinic for, 1842.
  suprarenal cortex and, [Woglom] ★473
  virus, dyes effect on, [Lewis] 753—ab
TUNGSTEN filament lamp, radiation from, [Coblentz] ★411
TUNNEL Skin graft: See Skin graft
TUNNICLIFF Serum: See Serum, goat
TURKISH National Medical Congress, 1683
TURNER, H. H., bequeathes his body to hospital, 1110
TURNER'S SIGN in acute hemorrhagic pancreatitis, [Johnston] ★1587
TURPENTINE in demonstrating lymphatic system in cadavers, 747
  sterilized oil of, to produce fixation abscess, [Suner] 976—ab
TURRELL, WALTER J., on editorial board of *British Journal of Actinotherapy and Physiotherapy*, 542
TWEEDY test of labor, [Laferty] 78—ab
TWENTIETH Century Fund, 1266—E
TWINS, death of one, in gemellary pregnancy, [Aburel] 1300—ab
  identical, manic-depressive psychosis in, [Bradley] 445—ab
  identical, similar tumors of testis in, [Champlin] ★96
  tuberculous, hereditary researches on, 427
TYMPANUM: See under Ear
TYPHLITIS: See Colotyphlitis
TYPHOID allergy, rôle in roseola and splenomegaly, [Delalande] 455—ab
  antityphoid serum perfected by Dr. Grasset and Dr. Gory, 1113
  bacillus, agglutination in serums of patients having unrelated infections, 1351—E
  bacillus in sewage, [Begbie] 695—ab
  bacillus in water, amount of chlorine necessary to destroy, 67
  bacillus, opsonic index, [Piana] 1540—ab
  bacillus, titrable forms, 1031
  barometric pressure effect on, 739
  blood changes in, [Nyfeldt] 764—ab
  carrier at Johns Hopkins Hospital, 1027
  carriers, New Jersey, 1595
  carriers, New York, 420
  combined vaccine, Haffkine, 1599
  combined vaccine, in tic douloureux, [Ball] 894—ab
  combined vaccine, Typhoid-Paratyphoid A Vaccine, 1745
  complications, azotemic nephritis, [Lemierre] 1997—ab
  drought effect on, health menaced by, Kentucky, 601
  epidemic, water company of Lyons held responsible for, 139; 278
  epidemics (milk borne) in rural areas, 1598
  etiology, boiled lobster, [Anderson] 1456—ab
  gallbladder perforation in, [Diamant-Berger] 1035—ab
  in Baltimore County, Maryland, 1105
  in merchant marine, 213
  in pregnancy, [Villarama] 1457—ab
  "seal of safety" campaign, 804
  therapeutic, in epilepsy and chorea, 1113
  transmission, intra-uterine, [Wing & Troppoli] ★405
  treatment, Agostinelli's, [Guerrero] 1942—ab
  treatment, bacteriophage, [Ruchka] 1789—ab
  treatment, common compounds of carbon, [McDowall] 827—ab
  treatment, transfusion, [Landon] 1531—ab
  vaccination in French army, 808
  Vaccine: See also Typhoid combined vaccine
  vaccine, how many times should it be used as preventive? 287
  vaccine, shock from, [Gerbasi] 1383—ab
  vaccine, test tube, 597—E
  vaccine treatment, [Miller] ★465
  vaccine treatment of arthritis "rheumatism," [Shahon] 1619—ab
  vaccine treatment of dementia paralytica, [Schelm] 627—ab
  vaccine treatment of undulant fever, [Budtz-Olsen] 904—ab
TYPHUS, abdominal, sodium salicylate effect on, 425
  blood smear agglutination tests in, [Lewis] 539—ab
  in Maryland, 207; 349; 941
  like diseases, 869—E
  Mexican, [Zinsser] 231—ab, 1940—ab
  Mexican, virus, lice and bedbugs with, [Castaneda] 1940—ab
  recurrence, [Agricolansky] 637—ab
  virus, [Nagayo] 1211—ab
TYROGLYPHUS farinae, infests digestive tube, [des Essarts] 1381—ab
TYROSINOSIS—a metabolic anomaly, 599—E

U

U. C. EXTRACT, 951—BI
ULCER: See also Abscess; Colitis; Intestines; Peptic Ulcer; Varicose Veins; etc.
  chronic, scalpel surgery for, [MacKee & Stone] ★1317
  congenital formation, [Ombrédanne] 81—ab
  from cosmetics, [MacKenna] 80—ab
  rodent, after prolonged irradiation, [Edwards] 968—ab
  syphilitic gastro-intestinal, 615
  treatment, irradiated substances, [Ried] 1218—ab
  treatment, Pyridium, 34
  treatment, scalpel surgery, [MacKee & Stone] ★1317
ULTRAVIOLET RAYS, antirachitic activation a panacea for negative calcium balances? [Steenbock] 160—ab
  antirachitic activation, priority as to discovery of Steenbock process, 220—C
  antirachitic value of milk after exposure of cow to, [Steenbock] 160—ab
  dosage, for infants (also Negroes) with tetany, [Bakwin & Bakwin] ★396
  effect on tuberculous peritonitis, [Steinbach] 622—ab
  eye (sound) needs no protection against, [Fink] 1207—ab
  garden of flowers and fruit, 211
  glasses for protecting eye from, [Coblentz] ★593
  irradiated cod liver oil and eosin in pulmonary tuberculosis, [Hildebrand] 622—ab
  irradiated cod liver oil for tuberculosis, [Bergman] 977—ab
  irradiated milk for nursing mothers, [Scheer] 1629—ab
  irradiated rabbits, bactericidal potency of blood, [Marginesu] 1998—ab
  Irradiated Substances: See also Viosterol
  irradiated substances in surgical conditions, [Ried] 1218—ab
  irradiation effect on blood cholesterol, [Malczyński] 459—ab
  irradiation of body cavities by ultraviolet rays produced therein, [Westmann] 1303—ab
  of sun, perfumes and pigmentation, 40—E; [Lane & Strauss] ★717
  Schickerling Ultraviolet Sun Bath Lamp, [Coblentz] ★411; 954
  sources of, [Coblentz] ★411
  Sunlit Ultraviolet Glass acceptable, 484
  to destroy harmful insects, 1682
  transmitting glasses; specification of minimum transmission, [Coblentz] ★864
  Treatment: See also Alopecia; Kidney tuberculosis
  treatment and peripheral blood, [Hoeffel] 1373—ab
  treatment in burns, [Hilbert] ★1021
  treatment in erysipelas, [Ude & Platou] ★1
  treatment of chilblains, [Humphris] 1623—ab
  treatment of skin disease, status, [Schiller] 161—ab
  uses and abuses, [Bunker] 450—ab
ULTRAVIRUS: See Virus
UMBILICAL CORD, blood from, Wassermann test on, 683
  blood volume, 1039
  compression, how long after will a six month fetus in utero live? 1039
  stump, care of, [Karp] 1306—ab
UMBILICUS, endometriosis, [Keene & Kimbrough] ★1166
  diphtheria, [Montgomery] 1995—ab
  Fistula: See Fistula
  tumors, [Holm] 382—ab
  urine from bladder escapes through, [White & Holm] ★393
  use of abdominal band in infants, 817
  yellow discoloration at, in acute hemorrhagic pancreatitis, [Johnston] ★1587
UNCINARIA, ancylostoma larvae journey in host, [Miyagawa] 1459—ab
UNCINARIASIS and tuberculosis, [Colby] 1129—ab
UNCONSCIOUSNESS in neuro-psychiatric conditions, [Bleckwenn] ★1168
UNDERNOURISHED: See under Nutrition
UNDERWEIGHT: See Body weight; Thinness
UNDULANT FEVER, [Loewy] 967—ab; [Ebskov] 1878—ab
  blood changes in, [Nyfeldt] 764—ab
  blood smear agglutination tests in, [Lewis] 539—ab
  bovine, [Sievers] 638—ab
  Brucella abortus and pasteurization, 955
  cause of bone lesions, [Weil] 701—ab
  certain public health problems in brucelliasis, 799—E
  contagious abortion and, 673
  epidemics, milk-borne in rural areas, 1598
  Hektoen phenomenon in, 1351—E
  immunity of calf to, 799—E
  milk examined for Bacillus abortus, 1107
  recent studies in, 1675—E
  transmission through milk possible, 1607
  treatment, acriflavine hydrochloride, 747
UNDULANT FEVER—Continued
  treatment, thionin and methyl violet, [Leavell & *others*] ★860
  treatment, typhoid vaccine, [Budtz-Olsen] 904—ab
UNITED FRUIT COMPANY, report, 1108
UNITED HOSPITAL FUND, 1433
UNITED STATES Army: See Army
  Civil Service Commission, examination for medical officer, 275
  conference on new Bureau of Narcotics, 671
  Congress: See Congress
  Chamber of Commerce: See Chamber of Commerce
  Federal Trade Commission's order vacated, Marmola quackery, 359—BI
  government needs bacteriologist, 57
  government needs biologist, 604
  government needs physicians, 1436
  government needs psychiatrists and other specialists, 351
  Hygienic Laboratory: See under Laboratory
  National Institute of Health: See National Institute of Health
  Pharmacopeial Convention: See Pharmacopeia
  Senate: See Congress
  Veterans Bureau: See Veterans Bureau
UNIVERSITY: See also Education, higher; Faculty of Medicine; Professors; Students; Teachers; under names of specific universities as Columbia; Duke; Harvard; Johns Hopkins; Ohio State; Yale; etc.
  adjustment to advance of science, [Fletcher] ★1389
  approved colleges for premedical education, ★487; ★488; 535—E
  City, Paris, dispensary for, 607
  cooperation between medical school and, [Hawkes] 159—ab
  courses for tuberculous students, Germany, 282
  extension work in medical education, [Bardeen] 755—ab
  health services, Medical College of Virginia, 1355
  ideals and future of medicine, [Fletcher] ★1389
  laboratories, activities, reports, 1191
  of Alabama Medical School, 1026
  of California, 272; 600; 734; 1594
  of California, adult health center, 539
  of California, hospitalization by, 1184
  of California, Life Sciences building, 1920
  of Cape Town, postgraduate study, 810
  of Chicago, 207; 273; 418
  of Chicago, patients wanted for study of pneumonia and hypertension, 1677
  of Colorado, pediatric department, 1510
  of Illinois, medical buildings dedicated, 1510
  of Kansas, medical school mergers, ★508; 535—E
  of Louisville School of Medicine, ★508; 510
  of Maryland Hospital, cancer clinic, 1271
  of Michigan, 54; 419; 1027; 1841
  of Mississippi, 1027
  of Mississippi School of Medicine, governor orders faculty members dropped, 319; 538—E; 871
  of Missouri reestablishes the clinical years, 1185
  of Pennsylvania, 350; 1187; 1273; 1431; [Fletcher] ★1389; [Hill] ★1393
  of Sydney, Rockefeller's gift to, 736; 1983
  of Tennessee, 208; ★508; 1027
  of Texas, 274; 1355; 1680
  of Toronto, 1027; 1107
  of Vienna, 214; 676
  of Virginia, medical films for loan, 1597
  of Western Ontario, changes, 1135
  of Wisconsin, 1273
  of Witwatersrand, postgraduate study, 810
  predmedical work required, ★187, 535—E
  research, correlation of, [Holloway] ★163
  statistics of colleges, ★199; 535—E
URACHUS, anomalies, [White & Holm] ★393
  embryology and development, [White & Holm] ★393
  tumor, fibromyoma, [Brady] ★338
UREA hydrochloride-quinine, injection for hemorrhoids, [Hayden] 895—ab
  in saliva, determination, [Larregla] 1160—ab
UREMIA, experimental, reversible form, [Addis & Raulston] 71—ab
  muscular, [Gounelle] 1538—ab
  nervous, [Savy] 235—ab
URETER, anastomosis (ureterovesical), making, [Hunner & Everett] ★330
  calculi, coexistent with gallbladder and renal stones, [Young] 156—ab
  calculi dislodger, [McKay] ★794
  calculi, endovesical treatment, [Keller] 904—ab
  calculi, ileus reflex in, [Denéchau] 1299—ab
  calculi, nonsurgical treatment, [Pieraccini] 1384—ab
  catheterization, new urine collection tube holder, [White] ★662
  Fistula: See Fistula

URETER—Continued
  pain, post-traumatic state of twelfth intercostal nerve simulating, [Huggins & Bucy] ★652
  reimplantation into bladder, [Dannheisser] 1784—ab
  urethral ectopic, from hydronephrotic half of double kidney, [Ballenger & others] ★257
URETEROCELE, [Dawley] 1293—ab
URETEROPLASTY, urinary obstruction, [Burford & Glenn] 156—ab
URETHANE, Aufrecht's method in pneumonia, 1283
  to prevent cocaine intoxication, 1839—E
URETHRA, applications, epinephrine in, 1112
  calcareous deposit in paraurethral gland, 1933
  discharge, persistent, treatment, 1367
  ectopic ureter, [Ballenger & others] ★257
  irrigant, alphanaphthol, 34
  phlegmon simultaneous with neck phlegmon, [Stutzin] 1545—ab
  reconstruction after extensive gangrene, [Mallard] ★332
  roentgen examination in female, [Thomsen] 832—ab
  roentgen study, practical value, [Keller] 764—ab
  stricture, bipolar current for, [Livermore] 1130—ab
  suppository anesthesia, [Fryszmann] 1544—ab
URIC ACID in Blood: See Blood
  metabolism, endogenous, in pernicious anemia, 1348—E
URINALYSIS, significance of, 221
URINARY TRACT: See also Bladder; Kidney; Ureter; etc.
  antiseptics, [Jaeggy] 1214—ab
  ascites with ureteroperitoneal fistula, [Hunner & Everett] ★327
  calculi, vs. food content, [Grant] 626—ab
  calculi with unimpaired renal function, [Walters] ★1336
  disease, Pyridium for, 34
  infection, bacteriophage for, [Christiansen] 382—ab
  obstruction and pain, relief of, [Burford & Glenn] 156—ab
  roentgenography with iopax, 141; 609; [Swick] ★1403; [Jaches] ★1409; 1425; [Braasch & Bumpus] ★1425; 1845
URINE: See also Urea
  acetonuria and cyclic vomiting, [Camera] 1781—ab
  acetonuria of cerebral origin, [Bix] 903—ab
  after total gastrectomy [Walters] ★103
  Albumin in: See Albuminuria
  Albumose in: See Albumosuria
  alkalinity, 551
  antoxyproteic acid in amentia praecox, [Gullotta] 699—ab
  bacteriophage and coli behavior in, [Frisbee] 231—ab
  bacteriuria, [Ballenger & others] ★257
  bismuth in, [Hanzlik] 1205-ab, 1533—ab; [Schaffer] 1533—ab
  carbonuria in, [Garot] 1136—ab
  colibacillurias, local antivirus therapy, [Jahiel] 1782—ab
  collection tube holder, [White] ★662
  colloids vs. stone formation, [Newcomb] 1053—ab; creatinuria, [Garot] 1136—ab
  creatinuria in tuberculosis, [Thompson] 1617—ab
  escape from bladder through umbilicus, [White & Holm] ★393
  globulin in albuminuria, [Fischer] 830—ab
  glycuronic acid in, 615
  gonococcal antigen in, test for, [Ovtchinnikov] 1299—ab
  incontinence in women, surgery for, [Smith] 1292—ab
  incontinence, roentgen study of female urethra, [Thomsen] 832—ab
  indicanuria in pulmonary diseases, [Griesbach] 459—ab
  lead in, after colloidal lead injection, [Newman] 629—ab
  lipoids in, [Brice] 692—ab
  nitrogen in child vs. feeding, [Simonini] 1057—ab
  of pregnant women, acetic acid added to, *reaction, [Laffont] 974—ab*
  of pregnant women in treatment of menstrual disorders, [Zamkoff] 759—ab
  of pregnant women, ovarian reaction, [Molinengo] 1215—ab
  opium in, in diabetes, [Chopra] 1053—ab
  oxaluria, 1855
  pepsin in, gastric achylia, [Rothschild] 239—ab
  phosphate in, after giving insulin, [Gortz] 382—ab
  Pituitary Hormone in: See Aschheim-Zondek Test; Pituitary Body
  protein substances from asthmatic patients which, produces wheals, 423
  proteose in allergic conditions, [Oriel] 897—ab
  pyuria, [Ballenger & others] ★257
  pyuria in children, 222; [Griffin] 757—ab
URINE—Continued
  pyuria, pregnancy, albuminuria, edema etc., [Huggins & Bucy] ★653
  retention, caused by urethral stenosis, 1112
  retention, postoperative, [Fiorini] 761—ab; [Rotthaus] 1543—ab
  sediment count in acute rheumatic infection, [Goldring] 449—ab
  serologic group differentiation of organism, [Thomsen] 764—ab
  shreds and pus in, after gonorrhea, 289
  specific gravity (low) sign of hyposthenuria and sexual weakness, 748
  specific gravity, significance of urinalysis, 221
  substance from, which exerts a dilating action on *vessels of musculature and skin, 676*
  sugar in pentosuria, 1102—E
  testicle hormone in, 203—E; [Thorek] 550—C
  tubercle bacilli cultured from, [von Hüth] 300—ab
  uricacidemia in diabetes, [De Candia] 1300—ab
UROGRAPHY, excretion, [Cooke] 1537—ab
  intravenous, by iopax, 141; 609; [Swick] ★1403; [Jaches] ★1407; 1425; [Braasch & Bumpus] ★1425; 1845
UROLOGY, American Urological Association, 603; 1598
  Congress of Urology, 1845
  French Congress of Urology, 1029
  status in Italy, 877
UROPYONEPHROSIS, [Lozzi] 1703—ab
UROSELECTAN: See Iopax
URTICARIA, from cold, [Duke] 293—ab; [Ramirez & Eller] ★1082
  from bedbug bites, [Churchill] ★1975
  from food, 817
  from heat, [Duke] 293—ab
  from trichophytin, [Wise & Sulzberger] ★1504
  giant, from abscessed tooth, [Ramirez & Eller] ★1081
  in breast-fed infants, 1593—E
  intradermal, scratch, indirect and contact tests in, [Ramirez & Eller] ★1080
  Quincke's or Bannister's disease? 681
  "stomach rash" or infectious disease, 885
  treatment, 615
  treatment, staphylococcus in, [Weise] ★324; [Greenbaum & Harkins] 815—C; [Wiese] 1607—C
URUGUAYAN Association Against Cancer prize, 1436
USTILAGINISM (from corn) in children, [Mayerhofer] 1544—ab
UTERUS: See also Endometrium; Fetus; Gynecology
  action of anesthetics and other drugs on, [Bourne] 827—ab
  adenitis, roentgen irritation-therapy, [Seitz] 1705—ab
  Adnexa: See Fallopian Tubes
  adnexa, condition opposite, in extra-uterine pregnancy, [Behney] ★1557
  adnexa disease, sedimentation test in, [Nielsen] 832—ab
  adnexitis, cutaneous reflex hyperalgesia of thighs in, [Jersild] 1464—ab
  adnexitis, gonococcal, vaccination in, [Bacialli] 697—ab
  artery perforation in parametric purulent sac, [*Inglima*] 1136—ab
  cancer, cervical, 1985
  cancer, cervical, abdominal hysterectomy in, [Bégouin] 235—ab
  cancer, cervical, radium and roentgen irradiation, [Nebesky] 562—ab
  cancer, hysterectomy, [Fullerton & Faulkner] ★1563
  cancer in stump after hysterectomy, [Branscomb] 754—ab; 1602
  cancer inoperable, what percentage cured by radium or roentgen rays? 1118
  cancer of body, treatment, [Neill] 1861—ab
  cancer, postmenopausal hemorrhages sign of, [Zweifel] 1385—ab
  cancer, radium and roentgen rays for, [Bowing] 690—ab
  cancer, radium effect on, [Meigs] 895—ab
  cervix, amputation prevent conception? 1041
  cervix, endocervicitis, 885
  cervix, endocervicitis in child, cauterization, 1691
  cervix, enlarged and shallow, stellate lacerated, 433
  cervix, malignant tumor in infant, [Kohlhaas] 1786—ab
  cervix, menstruation and light sports, 424
  chorionepithelioma, [Schmitz & Hueper] ★1413
  contraction, contraindicated ecbolics, [Puppel] 1305—ab
  contractions during labor, duration, [Frey] 760—ab
  contractions, oxytocic actions of drugs, 682
  curettage, ectopic fetus papyraceus expelled after, [McFadyean] 1132—ab
  effect of lead on, [Devlet-Kildeeva] 1545—ab
  elevator, [Monjardino] 630—ab
  Excision: See also Uterus cancer
  excision, cancer in stump after, [Branscomb] 754—ab; 1602
UTERUS—Continued
  excision, hysterectomy, [Fullerton & Faulkner] ★1563
  excision, Mayo vaginal, [Counseller & Stacy] ★984
  fetal cephalometry in, [Thoms] ★21
  Fistula: See Fistula
  hemangioma, [Horgan] 300—ab
  hemorrhage, functional menorrhagia, [Novak] ★1226
  hemorrhage, late, following labor, [Éparvier] 630—ab
  hemorrhage of constitutional origin, [Sharman] 453—ab
  hemorrhage, pelvic irradiation in, [Findley] ★857
  hemorrhage, postmenopausal, [TeLinde] 625—ab; [Herd] 758—ab; [Zweifel] 1385—ab
  hemorrhage, radium in, 816
  hemorrhage, undiminishing maternal mortality, England, 806
  hemorrhages during puerperium, counteracting fatal, [Heim] 1384—ab
  hydatiform mole, curettage for, [Sturgis] 78
  hydatidiform mole, ovarian-pituitary changes, [Novak] 1773—ab
  hydatidiform mole, positive Aschheim-Zondek test with, [Fanz] 1617—ab
  infection, bacteria responsible for, 1102—E
  intra-uterine transmission of typhoid, [Wing & Troppoli] ★405
  intra-uterine ulcerous malady causes stigma on shoulder, [Ombrédanne] 973—ab
  intra-uterine ulcers, [Ombrédanne] 81—ab
  large, heavy; hemorrhages in women over 50, [Fullerton & Faulkner] ★1563
  meconium peritonitis *from spontaneous* perforation of ileum in, [Bolkan] 370—ab
  oxygen capacity and saturation of mother and fetus, [Goldbloom] 963—ab
  prolapse, surgical treatment, [Crossen] 153—ab; [Counseller & Stacy] ★983; [Fullerton & Faulkner] ★1563
  roentgen study in pregnancy: amniography, [Menees] 1861—ab
  rupture, atypical, Hoehne's sign, [Lazarević] 1877—ab
  sarcoma, [Béclère] 1953—ab
  surgery in pregnancy, anesthesia for, operations on, [Featherstone] 1616—ab, 1915—ab
  Tubes: See Fallopian Tubes
  tumor, adenomyoma, [Keene & Kimbrough] ★1164
  tumor, fibroids, pelvic irradiation in childbearing woman, [Findley] ★857
  tumor, fibroma, hysterectomy, [Fullerton & Faulkner] ★1563
  tumor, fibromyoma, [Keene] 1203—ab
  tumor, myoma, [Turunen] 832—am; [Keene & Kimbrough] ★1164
  tumor, myoma, therapy, [Labhardt] 236—ab
  tumor, myoma vs. cholelithiasis, [Plaschkes] 636—ab
  tumor, primary, disappearance, [Novak] 1203—ab
  ventrovesicofixation, [Jülich] 1463—ab
UVEITIS, chronic anterior, [Beigelman] ★1658
UVURSIN, Fulton's Compound, 745—BI

V

VACCINATION: See also Immunization; under names of diseases as Smallpox; Typhoid; etc.
  cutaneous, in gonococcal adnexitis, [Bacialli] 697—ab
  in French army, 808
  influenzal pneumonia after, [Tuthill] 1534—ab
  law, revised, Germany, 611
  nervous system conditions after, [Ustvedt] 84—ab
  orchitis after, in child, [Schiavone] 1542—ab
  postvaccinal encephalitis, [van Rijsell] 242 ab; 280; [Grünberg] 901—ab; [Ogrinz] 903—ab; 1441; [Tuthill] 1534—ab; 1848
  preoperative, in gastric surgery, [Murard] 1134—ab
  septicemia relation to, [Grey] 453—ab
VACCINE: See also Leprosy; Rabies; Serums; Streptococcus; Tuberculosis; Typhoid; etc.
  autogenous, *therapy, [Miller]* ★464
  B C G: See Tuberculosis
  Langer, [Brachman] 823—ab
  ocular complications from, [Toulant] 1381—ab
  Ponndorf's, [Haase] 829—ab
  test tube, 597—E
  Therapy: See also Arthritis; Colds; Leprosy; Rheumatism; etc.
  therapy, [Miller] ★464
  virus, cultivation, [Li] 1535—ab
  virus, *diffusion* through central nervous system, [Cattaneo] 975—ab
VACUUM aspiration treatment of empyema, [Mansur] 301—ab
VAGINA antiseptic, mercurochrome, in *labor*, [Henderson] 230—ab; 667—E; [Mayes] 1208—ab; [Ford] 1946—ab
  douche, alphanaphthol, 34

VAGINA—Continued
  infected cyst or teratoma of, 66
  inflammation, treatment, [Andreitschuk] 1786—ab
  myoma of portio vaginalis uteri, [Turunen] 832—ab
  orifice, occluding membrane at, in congenital retention of menses, [Brown] 758—ab
  sarcoma (racemose) with metastases in lung, [Dugge] 241—ab
  suppository, contraceptive, irritation of penis from, 1609
  trichomonas vaginalis, [Faulkner] 1208—ab
VALUDE, Dr., death, 1190
VAN CAMP'S Puréed Fruits and Vegetables, 486
VAN DEN BERGH TEST: See Blood bilirubin
VANDERBILT UNIVERSITY, 208; 273; 1355
VAN DER HOEVE, J., awarded Mackenzie medal, 1108
VANDERLAAN, JOHN, honored, 668
VANISHING creams, [MacKenna] 80—ab
VAN LIERE, EDWARD J., gift to University of Chicago, 418
VAPOMENTHA SALVE, 1607—BI
VAPOR, warm medicated, Sorensen Therapeutic Heater No. 921, 413
  Sorensen Therapeutic Inhaler No. 922, 413
VAQUEZ'S DISEASE: See under Chickenpox
VARICELLA: See under Chickenpox
VARICOCELE surgical technic, [Macome] 1137—ab
VARICOSE VEINS, bandage sign, 1110
  slough, [Kilbourne] ★787
  treatment, contraindications to obliteration, 953
  treatment, injection, [Domanig] 84—ab; [Scott] 695—ab: [Kilbourne] ★787
  treatment, injection, strength of solution of sodium chloride, 1039
  treatment, sclerosis, solutions for, [Levi] 629—ab
  treatment, surgical, [Kiehnhoff] 627—ab
  ulcers, obliteration of, [Isaak] 1629—ab
  ulcers, paste bandage for, [Cellan-Jones] 1701—ab
  ulcers, treatment, 1854
VARIOLA: See Smallpox
VARIOT Method, removal of tattoo marks, 1763
VARNISH: See Lacquer
VASODILATATION: See Vasomotor Mechanism
VASOMOTOR MECHANISM, collapse in fatal emetine poisoning, [Leibly] 368—ab
  disturbances, affectepilepsy and hysteroepilepsy, [Notkin] 1128—ab
  disturbances with omarthritis, [Kahlmeter] 1790—ab
  paralysis in, sudden death after bismuth tartrate intravenously, [Curtis] ★1588
  vasodilatation reactions to cold, [Lewis] 374—ab
VASOMOTOR RHINITIS: See Hayfever
VATER'S AMPULLA: See Ampulla
VEGETABLES: See also Spinach; Tomatoes; etc.
  Alp Rose Canned Foods, 486
  canned, paratyphoid bacilli in, [Doyle] 1206—ab
  Curtice Brothers Certified Nursery Foods, 486
  diet effect on blood pressure, [Saile] 902—ab
  diet, nutrition of children on, [Lane] 1126—ab
  diet prohibited in allergic conditions, [Beckman] ★1582
  diet, raw, effects, [Willi] 1627—ab
  diet value in scurvy in adults, [Mettler & others] ★1089
  diet value in sprue, [Bassler & Lutz] ★1961
  dust and pulmonary disease, [Russell] ★1714
  iodine in, [Weston] ★835
  Kiddie Kanned Vegetables, Fruits and Cereals, 865
  proteins as infant food, [Ribadeau-Dumas] 898—ab
  Van Camp's Puréed Fruits and Vegetables, 486
VEINS: See also Blood Vessels; Embolism; Phlebitis; Thrombophlebitis
  alcoholic anesthesia by endovenous route, [Palma] 305—ab
  arteriovenous communication, [Halpert] 373—ab
  constrictor action of carbon dioxide, [Gollwitzer-Meier] 458—ab
  Fistula: See Fistula
  hepatic, occlusion with liver cirrhosis, [Hutchison] 694—ab
  hepatic, reactions to digitalis, etc., 868—E
  Injection into: See Injections, intravenous
  jugular (internal), blood oxygen and carbon dioxide in, [Lennox] 1939—ab
  jugular (internal) encephalic accidents after ligature, [Creysell] 1135—ab
  jugular (internal) thrombosis, [Tunstall] 626—ab
  mesenteric (superior), ascaris causes thrombus, [Obadalek] 904—ab
  mesenteric, thrombosis, [Jacobi] 1875—ab
  murmurs in hepatic cirrhosis, [Gwyn] 1531—ab
  occluder, simple, [Smith] 302—ab
VEINS—Continued
  Pressure in: See Blood Pressure
  rattlesnake bite into, [Atchley] ★385
  splenic, thrombosis, [Vertán] 831—ab; [Epstein] 1059—ab
VELVETLITE, [Coblentz] ★593
VENA CAVA inferior, thrombosis of, [Eilers] 241—ab
  ligation during puerperal pyemia, [Fels] 1877—ab
  reaction in increased intravenous pressure, *[Allen] 1627—ab*
VENEREAL DISEASE: See also Gonorrhea; Syphilis; Verruca
  campaign against, New York, 1106
  clinics for, [Irons] ★245
  control, Belgium, 140; 355
  control, Turkey, 1359; 1984
  houses of prostitution closed in Strasbourg, 1276
  in seamen, conference, 135
  in the British Empire, 807
  incidence in America and Europe, 682
  League for combating, 1846
  legislation against, Bucharest, 811
  most disastrous diseases, 1034
  nostrum, Solomon Whitfield Smith's Venereal Medicine, 1606—BI
  Prophylactic Institute
  quack, O. C. Piper, 603
  specialist charged with negligence in fatal cyanide gas poisoning, 811
VENESECTION: See Bloodletting
VENOCLYSIS: See Injections, intravenous
VENOM, antivenom serum in shock from intravenous rattlesnake bite, [Atchley] ★385
  of honey bee, 939—E
VENTILATION, importance of air vent in bath room, 1932
VENTRICLES: See Brain; Heart
VENTRICULIN, 797; 1589
VENTRICULOGRAPHY: See Brain
VERNES test, [Risi] 237—ab; [Ralph] 454—ab; [Dufour] 1997—ab
VERONAL: See Barbital
VERRUCA nostrum; Dr. Cline's prescription No. 6 for venereal warts, 1688—BI
  plana juvenilis, treatment, 288
  plantaris, [Sisk] 1700—ab
  plantaris and other verrucae, [MacKee & Stone] ★1317
  recurrent, 287
  removal, 1525
VERTEBRA: See Spine
VERVAINE, dermatitis from, [Lane & Strauss] ★717
VESTIBULAR APPARATUS: See Ear, internal
VETERANS, disabled, A. M. A. resolution on administering benefits to, with nonservice disabilities, 44; 48; 49
  intestinal tuberculosis in, [Matz] 451—ab
  World War Veteran's Allowance Act, Canada, 542
VETERANS' BUREAU, Dr. Griffith to be medical director, 944
  hospitals, 1435
  personnel, changes, 209; 604; 737; 1398
VETERINARIAN, undulant fever in, [Leavell & others] ★860
VICIOUS CIRCLE, [Stieglitz] ★842
VIEUSSENS, annulus of; ansa subclavus of, 1283
VINTON, CHARLES H., 208
VIOPAKE, [Coblentz] ★593
VIOSTEROL, 1593—E
  activation with roentgen rays, [Brummer] 763—ab
  calcification of tuberculous lesions by, [Spies] 157—ab; [Levaditi] 695—ab
  cod liver oil vs., [Hess & others] ★316; 798—E; [Holmes] 895—ab; [Musschl] 1281—C
  dosage, [Hess & others] ★316
  dosage, excessive, pathologic effects, [Shohl] 449—ab
  dosage, massive, produces renal lesions, [Spies] 690—ab
  effect on blood calcium in pulmonary tuberculosis, [Kaminsky] 622—ab
  hypervitaminosis with, 1023—E
  immunity to tuberculosis after using, [Hess & *others] ★322; 424*
  Mead's 5 D Cod Liver Oil with Viosterol, 200
  noneffect in fracture treatment, [Lewis] 1292—ab
  potency increased, Viosterol in Oil 250 D, 1021; 1023—E
  standard, Medical Research Council, 874
  toxicity, in rickets in infants, [Garelly] 1301—ab
  treatment, calcium parathyroid-viosterol, "The Thin Child and Calcium," in *Good Housekeeping*, 1038
  treatment of rickets, 38—E; [Musschl] 1282—C
  treatment of tuberculosis, [Scheurlen] 829—ab
VIRUS: See Psittacosis; Syphilis; Tuberculosis; Typhus; etc.
  antivirus for colibacillurias, [Jahiel] 1782—ab
  filtrable, is common cold due to it? 1837—E
VIRUS—Continued
  neurotropic, filtrable elements, 673
  Vaccine: See Vaccine
VISCERA, hydrocyanic acid in, at delayed necropsies, 544
  nephroptosis, relation to other viscera, [Deming] ★251
  pain, [Livingston] 443—ab; [Rudolf] 1532—ab
VISCEROPTOSIS: See Splanchnoptosis
VISCOSITY: See Blood
VISCUM *album*: See *Mistletoe*
VISION: See also Blindness; Eyes; Hemianopia; Myopia; Ophthalmology; etc.
  conference on sight conservation in school children, 1842
  disorders in athletes, [Jokl] 700—ab
  eyestrain, [Derby] ★913
  field of, in brain abscess, [Coleman] ★568
  handedness vs. eyedness, [Quinan] 623—ab
  in aviators, England, 1514
  standards for drivers of motor vehicles, 46
  testing, prism-refractometer, 1117
  tests for auto drivers, 1682
VITAL CAPACITY, at end of pregnancy and puerperium, [Alward] 1454—ab
  average in hypoventilation, [Overholt] ★1486
  determination in pulmonary tuberculosis, [Kutschera-Aichbergen] 1705—ab
  in bronchial asthma, [Feinberg] 294—ab; 1456—ab
  test for respiratory capacity, [Lorenz] 1951—ab
  venous pressure and, [Allen] 227—ab
VITAL STATISTICS: See also Population
  birth rate and eugenics, 1520
  birth rate, decline, 541
  birth rate, decline, Germany, 282
  birth rate, decrease, U. S., 136; 1514
  birth rate, distribution of population, 1515
  birth rate, low, England, 806; 1110; 1137; 1515; 1691
  birth rate of Europeans in French colonies, 1111
  death rate decreases in 1929, U. S., 1923
  death rate, effect of scarcity of alcohol on, [Bandel] 242—ab
  death rate of surgeons on Royal Victoria Hospital staff, [Mayo] ★646
  deaths in Oregon in 1929, 669
  health record book, 1848
  morbidity, Belgium, 140
  morbidity, census, Netherlands, 354
  morbidity, India, 603
  Mortality: See also Cancer; Death, cause of; Diphtheria; Infants; Maternal; Suicides; Tuberculosis; Vital Statistics, death rate; etc.
  mortality (child), League of Nations inquiry, 354
  mortality in relation to impaired hearts, 619
  mortality statistics for 1928, Netherlands, 948
  records of medical aid to children, 1438
  registration area, maternal mortality in, 1923
  South Africa, 1440
  Vienna, 1985
VITAMINS A and C, diets low in, induces pernicious anemia, [Wills] 453—ab
  A and carcinogenesis, [Sugiura] 298—ab
  A and carotene, 937—E; [Wolff] 1385—ab; 1978—E
  A and D feeding, vs. vitamin D alone, [Hess & others] ★323
  A and D, treatment of bone tuberculosis, [Pattison] 1052—ab
  A and salts, [Stone] ★712
  A deficiency and resistance against infection, [Lassen] 1297—ab
  A deficiency, symptons, 1674—E
  A in disease, 798—E; [Musschl] 1281—C
  A in Pompeian Olive Oil, 35
  A, nature of, 347—E
  A of butter, 1978—E
  A, reserve greater in females than in males, 1114
  A, withdrawal from diet, response to, [Tilden] 1456—ab
  avitaminosis, is rickets? [Pfaundler] 636—ab
  B and salts, [Stone] ★712
  B concentrates and milk, 143
  B deficiency in ketogenic diet causes pellagra, [Greer] ★863
  bone diseases and, 1601; 1603
  C and salts, [Stone] ★712
  C in sugared condensed milk, [Bakke] 698—ab; (correction) 901—ab
  C in tomato juice, cooking destroy? 433
  C, incipient dietary deficiency in child, 1759
  C, preservation, 114—E
  C, rich food effect in scurvy in adult, [Mettler & others] ★1089
  C value of canned and fresh tomato juice, 433; 614
  content of foods and variation in soil, 1010
  D: See also Cod Liver Oil; Viosterol
  D, advantages in feeding, [Hess & others] ★316
  D and rickets, 38—E
  D and salts, [Stone] ★712
  D, hypervitaminosis with, 1023—E

VITAMINS—Continued
  D ineffective in renal rickets, 116—E
  D requirement of rats living in dark environment, [Mussehl] 1281—C
  D, standard for, Medical Research Council, 874
  E and salts, [Stone] ★712
  E in foods for infants, 1933
  E, Lydin, 201
  effect on infections, [Pfannenstiel] 169—ab
  F (B_1) in home-canned tomatoes, 682
  in canned products, 1933
  Labrador—lesson in practical nutrition, 665—E
  lack of, and acholic cachexia, [Takasu] 700—ab
  McKesson's Vitamin Concentrate of Cod Liver Oil, 1317
  mineral oil absorption of, 1932
  of cereals, 268—E
  Sun Wheat Biscuits, 595
  treatment of pulmonary tuberculosis, [Scheurlen] 829—ab
VITAVOSE, 145
VITILIGO, 955
VIVISECTION: See Animal Experimentation
VOCAL CORDS, gray dry crusting accumulations, [Richards] ★769
  paralysis, roentgenology, [Pancoast] ★1320
  tumors, diagnosis, [Jackson] ★1322
VOLSTEAD ACT: See National Prohibition Act
VOLVULUS of intra-articular pedicled lipoma of knee, [Diamant-Berger] 1055—ab
  total, of small intestine, [Matry] 1055—ab
VOMITING: See also Car sickness; Nausea
  acetonemic, in children, [Brückner] 1139—ab
  acetonemic periodic, [Marfan] 898—ab; [Salomonsen] 1306—ab
  acetonemic periodic, and hemicrania, [Curschmann] *697—ab*
  acetonemic, periodic, in migraine in children, [Curschmann] 976—ab
  alkalosis of, [Drake] 1773—ab
  cyclic, from congenital duodenal stenosis, [Camera] 1781—ab
  cyclic, in nursling, atropine for, [Stephani-Cherbuliez] 1997—ab
  cyclic, treatment, [Marfan] 1947—ab
  in athletes, [Jokl] 700—ab
  in children, differential diagnosis of headache and, 1763
  in infants, use of sugar in, [Battistini] 974—ab
  in new-born, [Piana] 1057—ab
  in peptic ulcer, [Brown] ★1141
  in rheumatic individuals, [Levine] 1865—ab
  of Blood: See Hematemesis
  of peritonitis, 271—E
  of Pregnancy: See Pregnancy
VOMITUS reinjected into lower unobstructed bowel for high intestinal obstruction, 414—E
VORONOFF'S method of transplantation of testes, [Schleyer] 240—ab
VREELANDS Quackery, 219—BI; 613—BI
VULVA, ulcers in pregnancy and labor, [Wilson] ★1093

W

WAGNER MEDICINE COMPANY, 285—BI
WAITING rooms, liability for articles stolen from, 876
WALKING, what role does the little toe play? 817
WALNUTS, condemned, California, 1026
WAR: See also Army; Military; Soldiers; Veterans; Veterans Bureaus; etc.
  action of gases used in, 425
  decline of tuberculosis and increase in mortality during World War, [Cobbett] 162—ab
  memorial for physicians who died and served in the World War, 1676; 1746—E; 1840; 1919
  orphans, sanitary aid for, Italy, 809
  poisoning by gases used in, sequels, [Reiche] *379—ab*
WARD'S Celebrated Liniment, asthmatic attack from, 885
WARTS: See Verruca
WASHINGTON UNIVERSITY, 1511
WASSERMANN TEST; fast syphilis, sulpharsphenamine in, [Grund] 693—ab
  fast syphilis, treatment, 432; 1525
  in amebic infections, [Craig] ★10
  in experimental syphilis, [Thomsen] 1546—ab
  in malaria, [Cherefeddin] 377—ab
  in syphilis control demonstration, North Carolina, 1753
  mechanism, [Eagle] 1863—ab
  negative and syphilis, 1609
  negative, in syphilitic aortitis with, [Levine] 1697—ab
  on blood from umbilical cord of new-born, 683
  positive, in pregnancy sign of syphilis? 1196
WATER: See *also Baths; Hydrotherapy; Lime* Water; Mineral Water; Swimming; Toilet Water; Thalassotherapy
  bottled, survey, Missouri, 1433
WATER—Continued
  drinking, disinfected with calcium hypochlorite in epidemic, 1600
  drinking, mineral content vs. health of consumer, 363
  drinking, typhoid from, responsibility of cities, 139; 278
  germander, Stroopal fraud, 1037—BI
  hard or soft, 433
  metabolism and epileptic seizures, [Fay] 232—ab
  metabolism and obesity, 36—E; [Grote] 828—ab
  metabolism, significance of skin for, [Geréb] 308—ab
  radium, in essential hypertension, [Ayman] ★247
  spirochetosis due to, [Troisier] 81—ab; 671; 946
  sugared, etc., for invisible writing, [Langen] 1628—ab
  supplies exhausted, Ohio cities ask aid, 1922
  supplies, "seal of safety," campaign, 804
  tap, lead poisoning from, 1684
  test, 947
  typhoid bacilli in, amount of chlorine necessary in, 67
WATERMELON extract in essential hypertension, [Ayman] ★247
WATKIN'S GRIPPE TABLETS, poisoning in children, [Aikman] ★1662
WATKINS-Wertheim operation for prolapse of uterus, [Counseller & Stacy] ★983
WATSON, MALCOLM, 712
WATTS, W. H. L., 612—BI
WAX: See *also Paraffin*
  paper for new mask, [Mellinger] ★662
WEALTH, misspent, for health, 599—E
WEATHER: See also Climate
  conditions vs. respiratory infections, [McLean] ★1339
  effect, on thrombosis and pulmonary embolism, [Fritzsche] 1625—ab
  hot, wet-bulb temperature for recording, 875
WEBB COMPANY, Adjustor, 745—BI
WEBER-Parkes Prize: See Prizes
WEED pollen, hay-fever from, [Huber] 293—ab
WEIGHT: See Body weight; Obesity; Thinness
WEIL Disease: See Jaundice, spirochetal
  Felix Reaction and exanthematous fever, [Plazy] 1212—ab
WEINBERG, M., gives DeLamar lectures, 1353
WEINBERG MEDAL: See Prizes
WELCH, WILLIAM HENRY, A. M. A. medal presented to, 118
  birthday celebration, Tokyo, 426
WELCH GRAPE Juice Co.'s amber colored tomato juice, vitamin C in, 433
WELDONA, liver atrophy, [Rabinowitz] ★1229
WERNER, F. C., Galvano Necklace, 882—BI
WEST, OLIN, A. M. A. rebuttal evidence at Senate investigation of ergot, ★728; 730—E
WESTERN JOURNAL OF SURGERY: See Journals
WESTERN RESERVE UNIVERSITY, 51; 55
WETNURSE, law against venereal disease in, 811; 1360
WHEAT: See also Bread; Flour
  cereals, [Mattill] 756—ab; 1101—E; [Tisdall] 1773—ab
  Sun Wheat Biscuits, 595
WHEEZE, in neoplastic and other diseases of lung, [Jackson] ★639
WHIRLPOOL baths to overcome contractures in burns, [Hilbert] ★1021
WHISKY and acetylsalicylic acid in asthma, [Beckman] ★1585
  aconitine in, causing cardiac collapse, [Hartung] ★1265
  addict, safe to administer alcohol to, 614
WHITE, ROBT. H., execution by hydrocyanic acid gas in state prison, [Hamer] ★661
WHITE'S COD LIVER OIL CONCENTRATE, ★663
WHITE FUND, sixth health unit dedicated, 1105
WHITE HOUSE Conference on Child Health, [Baker] 1018—ab; 1514; 1746—E; 1765—ME
WHITE LEG: See Phlegmasia alba dolens
WHITEFIELD Genuine Grapefruit Juice, 1933
  Genuine Orange Juice, 1835; 1933
WHOOPING COUGH, complications, brain lesions, [Mikulowski] 1380—ab
  complications, encephalitis, [Mikulowski] 637—ab
  diagnosis by cough plate method, [Sauer & Hambrecht] ★263
  diagnosis, early, [McGee] 301—ab
  measles affinity to, [Mikulowski] 1872—ab
  nostrum, Dr. Cline's prescription, 1688—BI
  nostrum, Forkola Jell, 883—BI
  nostrum, Numoss, 952—BI
  prevention, 1600
  therapeutic effect on pre-existing epilepsy, [Guthrie] 1534—ab
  treatment, Besredka's vaccine, [Kramsztyk] 1787—ab
  treatment, convalescent serum, 287
  treatment, ephedrine, [Agrelo] 1626—ab
WHOOPING COUGH—Continued
  treatment, ether by rectum, etc., [McGee] 966—ab
  treatment, narcotine, [Chopra] 1053—ab
  treatment, streptococcic vaccine, [Belatskaya] 637—ab
  treatment, transfusions in, [Landon] 1531—ab
WIDAL TEST and tularemia, 1040
WIDEMANN'S INK for invisible writing, [Langen] 1628—ab
WILBUR, RAY LYMAN, A. M. A. medal presented to, 118
  summary of White House Conference by, 1746—E; 1768—ME
WILDER, R. M., eat and stay thin, 1182—E
WILEY, HARVEY W., criticism of Basy Bread, 1194—BI
WILLIAMS, FRANKWOOD E., retires, 1680
WILLIAMS' 101 Tonic, 1606—BI
WILLS: See Medicolegal Abstracts at end of letter M
WILLSTAEDTER introduced Avertin, 1427
WINDOW glass, ultraviolet transmitting, [Coblentz] ★864
WINE, 15 per cent alcohol allowed, Belgium, *1602*
  lead poisoning from, [Nedok] 84—ab
  of Cardui, ★723; 730—E
WINTER, Itch: See Pruritus hiemalis
  treatment of rheumatism in, [Fox] 233—ab
WISCONSIN: *See also University of Wisconsin*
  Alumni Research Foundation, increased potency *of viosterol preparations, 1021; 1023—E*
WITNESSES: See Evidence and under Medicolegal Abstracts at end of letter M
WOMEN: See also Maternal
  conditions in Indian population, 137
  drinking of liquor increasing among, England, 211
  in medical and other professions, 277
  Physicians: See Physicians
  sex life vs. moral responsibility, 1442
  Students: See Students, Medical
  Styles: See Styles
  work of, in factories, Italy, 1190
WOMEN'S AUXILIARY: See also A. M. A.
  Hygeia and, 1512
WOOD Alcohol: See Methyl Alcohol
  garlic, Stroopal fraud, 1037—BI
  tick, provisions against tularemia, 735
WOOD'S (Casey) Ointment for interstitial keratitis, 1041
WORDS: See Terminology and "Words and Phrases" under Medicolegal Abstracts at end of letter M
WORK, HUBERT, A. M. A. medal presented to, 118
  first speaker of A. M. A. House of Delegates, address of, 42
WORK: See also Exercise; Industrial; Occupational Therapy
  capacity for, of man at thirty-five, 1928
  clerical, best light for, 276
  five day week results in increased output, 807
  mental, and blood pressure, [Fischer] 239—ab
  muscle, effect, on protein metabolism, 37—E
WORKMEN, clinics for children of, Sumatra, 353
  health of worker of today, [Oliver] 1132—ab
  sickness among wage earners, 1274
WORKMEN'S COMPENSATION ACTS: See also Disability; Insurance; Medicolegal Abstracts at end of letter M
  benefits, steady increase in, Wisconsin, 1597
  claim, neurosis arising out of, 1759
  claims, arbitrary period of disability as mode of settlement in, [Kahn] 227—ab
  organization to combat silicosis, England, 606
  society endorses compensation agreement, New York, 1354
WORLD League for Sexual Reform, 603; 1191
  War: See Veterans; War
WORMS: See also Ascaris lumbricoides
  isolation of chemical fractions of, 951
WOUNDS, effect of diet on growth of fibroblasts in, [Harvey] 158—ab; 1183—E
  gangrene of thigh, [Pennoyer] ★342
  gunshot, tetanus after, *1117*
  healing under adhesive plaster bandage, [Dabasi] 1543—ab
  healing, vs. Gerson diet, [Schade] 311—ab
  nostrum, Mosso's Oil of Salt, 1280—BI
  stab, of abdomen, [Hyndman] 155—ab
  stab, of neck followed by spinal fluid leakage, [Shawan] ★1671
  surgical, in human beings, [Hartwell] 623—ab
  treatment, [Hansen] 1951—ab
  treatment, brilliant green, 215
  treatment, irradiated substances, [Ried] 1218—ab
  treatment, Pyridium, 34
  treatment, surgical diathermy, [Spitzmüller] 1305—ab
WRESTLER, cauliflower ear in, 817
WRINKLE removers, [MacKenna] 80—ab
WRIST: See also Scaphoid Bone, carpal
  eczema of, 289

WRITERS, foremost, in Afrikaans today is a physician, 810
  word sparing assertions, 1724—ab
WRITING, invisible, methods, [Langen] 1628—ab
WRYNECK: See Torticollis

X

XANTHOMA, naevo - xantho - endothelioma: [Jacoby] 450—ab
  treatment, roentgen rays, [Sosman] 445—ab
  xanthelasma, scalpel surgery for, [MacKee & Stone] ★1317
[illegible] dietary deficiency
[illegible] -E
[illegible] ★470
[illegible] value, [da Silva-
[illegible]

Y

YAGO One Day Cold Tablets, 883—BI
YALE UNIVERSITY, 1432
YATREN: See Chiniofon
YAWS: See Frambesia
YEAST, anti-anemic substances in calf's liver and anemia, 1759
  brewers, cereal mixture containing, [Tisdall] 1773—ab
  effect on rats, deficient diet, [Gudjonsson] 1464—ab
  Fleischmann's, advertising, ★723; 730—E; [Stone] ★714
  Ironized Yeast, 679—BI
  like fungi, localized infection from, [Jones] 300—ab
  like fungi, serologic relationship, [Lim] 1538—ab
  plus sunflower seed in infant's food, [Ribodeau-Dumas] 898—ab
  study by complement-fixation test, [Stone] 1380—ab
  treatment of constipation, [von Noorden] 1875—ab
  treatment of pellagra-like skin lesions due to ketogenic diet, [Greer] ★863
YELLOW FEVER, blood in, guanidine-like substances in, [Findlay] 1537—ab
  carriers, domestic animals as, 1518
YELLOW FEVER—Continued
  dengue and, 1847
  lesions in Africa and America, identity, [Klotz] 1698—ab
  patients, former, study by International Health Board, 1514
  research, 672
  transmission of, [Hindle] 1780—ab
YOYODA, Dr., on susceptibility to scarlet fever, 664—E

Z

ZANGEMEISTER'S test of paternity, [Rupp] 764—ab, [Mau] 1704—ab
ZEYEN-LEX APPARATUS: See Apparatus
ZIEGLER, LLOYD H., 1354
ZINC content of animal bodies, [Bertrand] 1299—ab
  in metabolism of child, 213
  oxide for controlling hemorrhage, [Hiden] 628—ab
  oxide paste bandage for varicose ulcers, [Joneses] 1701—ab
  stearate, pneumonoconiosis or pulmonary hemorrhage from? 684
ZYMATOID, 1365—BI

AUTHOR INDEX

In this Index are the names of the authors of articles which have appeared in The Journal, the names of those who have read papers before Societies as published in The Journal and those whose articles have been abstracted in the Current Medical Literature Department. The * preceding the page reference indicates that the article appeared in full in The Journal. For subject index see page 2001.

A

Aars, C. G., 1205
Abel, E., 696
Abelin, I., 1785
Abell, I., ★1903
Abrahamsen, H., 1060
Abrami, P., 560
Abrashanow, A., 1305
Aburel, E., 1300
Accorimboni, M., 165
Achard, C., 759, 1702, 1782
Ackman, F. D., 1377
Acuña, M., 1057, 1512, 1873
Adair, F. L., 1699
Adams, A. W., 1052
Adams-Ray, J., 702
Addessi, G., 1382
Addis, T., 71
Adie, W. J., 897
Adlersberg, D., 1875
Adreani, P., 761
Adson, A. W., 1378
Aga-Han, 1877
Agduhr, E., 637
Agrelo, R., 1626
Agricolansky, B. N., 637
Aikenhead, D. C., 1621
Aikman, J., ★1661
Akaiwa, H., 1543
Åkerrén, Y., 1546
Albee, F. H., 369
Alberti, V., 457
Albot, G., 560, 971
Albrecht, H. U., 1951
Albulesco, 1381
Alexander, H., 829
Alexander, J., 1125, ★1478, 1862
Allan, M., 80
Allan, W. B., 691
Allason, S. E., 759
Allen, E. V., 227, 1627
Allen, I. M., 968, 1209
Allen, P. K., 1912
Allerton, G. T., 1622
Allison, V. D., 1297
Alt, H. L., 79, 229, 965
Althausen, T. L., 1375
Alvarez, W. C., 1374
Alward, H. C., 1154
Ambrosino, N., 1542
Amiel, D., 1872
Ammerschläger, J., 1218
Amoss, H. L., ★482, ★860
Amy, P., 1135
Andersen, M. S., 901
Anderson, G. W., 965, 1456
Anderson, J. E., ★1015
Anderson, W. E., ★395
Anderson, W. W., 76
Andreitschuk, T. S., 1786
Andren, T., 1865
Andrews, J., 1617
Andrews, M. S., 826
Andvord, K. F., 978
Anfänger, L., 458
Anguenitski, I., 1133
Anselmino, K. J., 1388, 1626, 1627
Anthony, A. J., 1627
Anton, G., 1386
Apostoleano, E., 1135
Arborelius, M., 1388
Archer, V. W., ★1819
Ariel, M. B., 635
Armand-Delille, P. F., 696
Arntzen, J. D., 382
Aronson, J. D., 964
Arthur, B., 1946
Artom, M., 697
Arzt, F., 1454
Aschner, P. W., *369*
Ascoli, M., 1300
Ashe, B., 1531
Asherson, N., 1780
Ashford, B. K., 79
Ashman, R., 443
Askey, E. V., 371
Askey, J. M., 297
Atchley, D. W., ★385
Aubertin, C., 695, 828
Audibert, V., 1212
Austin, E. M., 755
Axhausen, G., 1952
Axmann, 309
Aycock, W. L., 298, 298, 1535
Aykroyd, W. R., 1131
Ayman, D., ★246
Ayres, S., Jr., 893
Azérad, E., 303, 696

B

Baastrup, V. I., 764
Babes, A., 1134
Babkin, B. P., 1376
Bach, F., 303
Bacialli, L., 697
Bacigalupo, J., 1541
Backlund, B., 1140
Badile, P. L., 457
Badinant, 1623
Badoux, V. E., 1997
Badylkes, S. O., 239
Bar, H., 636
Bagdassarjanz, I., 1304
Bager, B., 1790
Baggio, G., 975
Bailey, H., 1867
Bailey, L. G., 1373
Bailly, J., 455
Baird, D., 1996
Baird, D. W., 368
Baisch, A., 1138
Baker, B. M., Jr., 1864, 1911
Baker, D. M., 374
Bakke, A., 698; (correction) 904
Bakwin, H., ★396
Bakwin, R. M., ★396
Balaban, W., 1874
Balfour, D. C., 300, 1776
Ball, C. R., 891
Ballenger, E. G., ★257
Ballenger, H. C., 823, ★1828
Ballin, M., 158
Ballon, H. C., 1201
Balyeat, R. M., 891
Bancroft, F. W., 821
Bancroft, I., 1615
Bandel, R., 212
Bankart, A. S. B., 758
Baquero Gil, G., 165
Baráth, E., 1877
Barber, H. W., 897
Barborka, C. J., ★1825
Bardeen, C. R., 755
Bardisian, A., 899
Barenberg, L. H., ★4
Bargen, J. A., 300, 372, 756, 1047
Barker, P. P., 967
Barker, P. S., 1125
Barnard, W. G., 970
Barnett, T. M., 967
Barr, D. P., 449, 963
Barringer, B. S., ★1731
Bartlett, W., 154, 1051
Bartlett, W., Jr., 1051
Bartoli, O., 1460, 1625
Basch, G., 235
Basch, M., 235
Basherov, S., 160
Bass, C. C., ★988
Bassler, A., ★1961
Bassoe, P., 296
Bastos, M., 1543
Batchelder, A. P., 231
Battista, A., 305, 1383
Battistini, G., 974
Baty, J. M., 965
Baudouin, A., 759
Bauer, A., 698
Bauer, J., 460
Baum, H. L., ★1829
Baumbach, G., 309
Baumgartner, E. A., 1939
Bayer, L. M., 77
Bayer, W., 1998
Bearse, C., 1619
Beattie, J., ★715
Beauzemont, Y., 1299
Beaven, P. W., 368
Beccherle, G., 1625
Becher, E., 903, 1787
Beck, A., 311
Beck, C. S., 1291
Beck, O., 1786
Beck, W., 377
Becker, S. W., ★26
Becking, B. E. J. H., 1140
Beckman, H., 291, ★1582
Béclère, A., 971, 1953
Beebe, A. R., 449
Beebe, R. T., 1865
Begbie, R. S., 695
Bégouin, 235
Behdjet, H., 1054
Behney, C. A., ★1557
Behrend, M., ★1889, 1914
Behring, I., 702
Beigelman, M. N., ,★1658
Belatskaya, N. G., 637
Bell, E. T., 1454
Bell, H. H., 151
Bellelli, F., 1215
Belloni, G., 1056
Belot, J., 303
Belt, T. H., 1698
Bénard, H., 631
Benatuil, L., 1301
de Benedetti, V., 1137
Benedetti-Valentini, F., 697, 1950
Benedict, E. B., 1943
Benedict, S. R., 298, 298, 1861
Benedict, W. L., ★1577
Benjamin, B., ★577
Bennett, G. A., 1126
Bennett, T. I., 1996
Bennett, W. H., 80
Bensaude, R., 375
Benvenuti, B., 376
Bérard, L., 973, 973
Berceanu, D., 1381
Berck, M. M., 369
Bercovitz, Z., 621
Berenblum, I., 452
Berg, A. A., 1291
Berg, B. N., 230
Berger, I., 458
Berglund, H., 72
Bergman, R., 977
Bergsma, S., 371
Berkman, J. M., 1290
Bernard, L., 977
Bernhard, F., 381, 1217
Bernstein, M., ★1098
Bernton, H. S., ★189, 301
Bernzoun-Kotin, R. I., 637
Berri, P., 1872
Berry, G. P., ★577, ★579
Bertrand, G., 1299
Bethea, O. W., ★925
Bettinger, H., 1877
Bettinotti, S. I., 1057, 1873
Bevan, A. D., ★1311
Biach, M., 310
Biancalani, A., 1383
Biancheri, T., 760
Bianchetti, C. F., 697
Bianchi, A., 975
Bie, V., 978, 978
Bier, A., 378
Bierring, W. L., 1376
Biggart, J. H., 1946
Bigger, I. A., ★935
Bigler, J. A., 1373
Billmann, G., 638
Bikkenin, B. S., 1546
Bilek, F., 1628
Billich, H. U., 1953
Binet, L., 235
Bingham, J. A., 1867
Binkley, G. E., ★1971
Binswanger, H. F., ★1007
Biraud, I., 977
Birk, 83
Birkhaug, K. E., ★917
Birt, E., 1781
Bishop, E. L. (Atlanta, Ga.), 447
Bishop, E. L. (Nashville, Tenn.), ★563
Bivings, F. L., 1620
Bix, H., 903
Björkman, H., 702
Blachford, J. V., 1536
Black, D. R., 152
Black, I., 1127
Black, J. H., 293
Black, N., 160
Blackfan, K. D., 1531
Blackford, L. M., 76
Blair, D. M., 1867
Blair, J., 1295
Blair, J. E., 1628
Blake, F. G., 1535
Blalock, A., 230, 1863
Bland, E. F., ★1489
Bland, J. O. W., 1298
Bland, P. B., 300, ★473, 1203
Blankenhorn, M. A., ★1066
Blankoff, B., 1624
Bleckwenn, W. J., 892, ★1168
Bleyer, A., 150
Blina, L. V., 561
Bliss, J. H., 690
Bloch, L., ★1883
Bloch, R., 1624
Bloodgood, J. C., 1777
Bloomfield, A. L., 73, 963
Bloomfield, J. J., 161
Blotner, H., 1618
Blount, W. P., 1126
Blumberg, A., 1130
Blumensaat, C., 1138
Blumenthal, F., 1875
Blumer, G., 232
Blumgart, H. L., 228
Boas, E. P., 901
Boas, H., 462, 1878
Bock, A. V., 419
Bodansky, A., 1628, 1911
Boeckel, A., 1870
Böhm, S., 1305
Boeminghaus, H., 1513
Bohn, H., 458
Bohrod, M. G., 755, 1205
Boikan, W. S., 370
Boissel, G., 561
Bolaffi, A., 698
Boling, J. R., ★267
Boller, R., 633
Bollman, J. L., ★1722
Bolton, W. W., 1866
Bombi, G., 1541
Bonafé, L., 1702
Bonanno, G., 1136
Bonar, B. E., 1373
Bonn, H. K., 893
Bonnamour, S., 1381
Bonnet, H., 1133
Bonorino Udaondo, C., 1382
Boon-Itt, S. B., 1779
Boots, R. H., 1048, ★1891
Boquien, Y., 1870
Borchardt, W., 458, 1302
Bordley, J., III, 1048, 1911
Borelius, R., 382
Borgbjærg, P., 1878
Bornhofen, E., 306
Borochowitsch, W., 1164
Borra, V., 305
Borromeo, G., 697
Bortin, A., 1295
Bortz, E. L., ★400, 445
Bose, J. P., 1053
Bosshardt, F. H., 1126
Bosviel, P. G., 1212
Bothe, F. A., 1778
Botreau-Roussel, 972
Boulin, 696
Bourne, A. W., 827
Bowcock, H. M., 417
Bowen, B. D., ★30, 227, ★565
Bowing, H. H., 690
Braasch, W. F., ★1425, 1866
Brachman, D. S., 823
Braddock, W. H., 1377
Bradford, W. L., 1126
Bradley, I. A., 445
Bradley, W. H., 1780
Bradshaw, R. W., 559
Brady, L., ★338
Braeunig, K., 1952
Braid, F., 694
Brailey, A. G., 368
Brain, W. R., 758
Braine, J., 1035
Braithwaite, L. R., 1298
von Bramann, C., 1387
Brancati, R., 1540
Branch, A., 1206
Brandberg, R., 311, 312
Branscomb, L., 751
Bray, G. W., 1131
Bremer, H., 900
Brems, A., 312
Brennemann, J., 1373
Breslich, P. J., 1206
Breuer, F., 1781
Brews, A., 758
Brice, A. T., Jr., 692
Brindley, P., 1914
Brinnitzer, H. N., 977
Bristol, D. A., ★13
Bristow, W. R., 758
Brittain, F. L., 891
Britten, R. H., 161
Broca, R., 1133
Brock, B. L., 227
Brockway, A., 825
Bronner, H., 459
Brooks, B. U., 1620
Broom, N. H., 1456
Brouca, R., 1541
Brouet, 163
Brouha, M., 1213
Brow, G. R., ★715
Brower, A. B., 1047
Brown, A. (Omaha), 1291
Brown, A. (Toronto), 962, 962, 1773
Brown, A. L., ★100
Brown, C. F., 1700
Brown, C. L., 1049
Brown, G. E., 447
Brown, H. B., 419
Brown, J. B., 154
Brown, P. K., 1862, 1988
Brown, R. C. (Chicago), ★1144
Brown, R. C. (London), 758
Brown, T. K., 1453
Brown, W. G. S., 1781
Browne, F. J., 1868
Bruckman, F. S., 449, 449
Brückner, 1139
de Bruine Ploos van Amstel, P. I., 239
Brummer, K., 763
Brunschwig, A., ★995
Brunsting, L. A., 1533, 1620
Bruusgaard, C., 978
Bryant, L. S., ★1707
Buch, A., 764
Buchmann, P. J., 1212
Buckingham, W. W., ★1478
Bucy, P. C., ★652
Budd, S. W., ★1424
Budtz-Olsen, J., 901
Büben, I., 311, 1625
Bufnoir, C. M., 1135
Bulger, H. A., 963
Bullock, J. K., 1773
Bullowa, J. G. M., 1128
Bumpus, H. C., Jr., ★1425
Bunbury, D. E., ★1725
Bungenberg de Jong, W. J. H., 977
Bunker, J. W. M., 450
Bunting, R. W., 1373
Burch, J. C., 824, 1863
Burden, V. G., 1776
Burford, C. E., 156
Burgess, J. F., 691
Burgheim, F., 1953
Burkhardt, E. A., Jr., 690
Burman, M. S., 825
Burn, J. H., 827
Burnand, R., 971
Burnham, L., 1375
Burns, M. A., ★91
Burton, J. A. G., 303
Burwell, C. S., ★1633
Busman, G. J., ★1253
Butler, S., ★85, 413
Byers, R. K., 1295
Byrd, H., 1050
Bywater, H. G., 1458

C

Cacciapuoti, G., 305
Cade, A., 1380
Cade, S., 1622
Cadenat, 972
Caire, A., 1539
Calhoun, J. A., 1864
Calò, G., 828
Calzolari, T., 899
Camauër, A., 975
Camera, U., 1781
Cameron, G. R., 1946
Campbell, F. B., 154
Campbell, G., 1131
Campbell, M. F., 1294, 1943
Campbell, V. E., 230
Campese, E., 457
Canale, P., 1460

AUTHOR INDEX

de Candia, S., 1300
Cannell, D. E., 690
Cantarow, A., 1533, 1866
Capecchi, E., 1215
Capo, R., 1703
Capuani, G. F., 974
Careddu, G., 899
Carman, J. S., 755
Carnett, J. B., 369
Carnot, P., 631
Caroli, J., 163, 631
Carr, J. G., 438, 1698
Carrara, N., 1540
Carroll, G., 156
Carteaud, A., 560
Carter, L. F., ★1420
Cary, E. H., ★1806
Casper-Fürstenheim, A., 562
Cassoute, E., 1380
Castaneda, M. R., 1940, 1940
Castellani, A., 80, 560
Castle, W. B., 163, 1289
Castleton, K. B., 1290
Cattan, R., 971, 1997
Cattaneo, F., 237
Cattaneo, L., 975
Caussimon, J., 1214
Cavalletti, V., 1300
Cavenaugh, S. A., ★13
Caylor, H. D., ★1736
Cecil, R. L., ★1263, 1378, ★1547
Cellan-Jones, C. J., 1701
Cellan-Jones, K. M., 1701
Centanni, G., 1783
Chabrun, J., 1782
Chabrut, R., 1540
Chalier, P., 1382
Chamberlin, W. B., ★470
Champlin, H. W., ★96
Chang, S. P., 1538
Charbonnel, 235
Chase, W. H., 626
Chaussinand, R., 1133, 1133
Cheatle, G. L., 1623
Chen, T. T., 1538
Cheney, G., 444
Cherefeddin, O., 377
Chesney, A. M., 157
Chiapponi, L., 973, 974
Chiasserini, A., 697, 899
Childrey, J. H., 1374
Chiray, M., 828, 1135
Chisholm, A. J., 624
Chisholm, C. A., 448
Chistyakova, A. I., 1789
Chopra, R. N., 1053, 1053, 1053, 1053
Chouke, K. S., 1048
Christ, A., 1139, 1139
Christensen, L. Ø., 1388
Christian, H. A., 373
Christiansen, H., 382
Christiansen, T., 1546
Christiansen, V., 904
Christie, A., 1126
Christie, C. D., 444
Churchill, T. P., ★1975
Cicala, G., 1300
Clark, E. B., ★1342
Clarke, H. T., 159
Clarke, N. E., 1127
Clasen, A. C., 154
Claydon, E. V., 1379
Clayton, C. F., 967
Clayton, E. S., 1945
Clein, N. W., 1699
Clément, F., 971
Clements, R. G., 1781
Clerc, A., 1702
Close, H. G., 969
Cloud, A. W., 1292
Clough, H. D., 755
Clute, H. M., ★389, ★1568
Cobau, A., 165
Cobbett, L., 162
Cobe, H. M., 158
Coblentz, W. W., ★411, ★593, ★864
Codeleoncini, E., 1382
Coelho, E., 561
Coffey, W. B., 1376
Cohen, A. C., 368
Cohen, H., 1785
Cohen, M. B., 293, 294, 1456
Cohen, P., 79
Cohn, E. J., 73
Cohn, M., 1875
Colby, C. D., 1129
Cole, L. G., 1942
Cole, P. F., 156
Cole, W. G., 1942
Colebrook, L., 896
Coleman, C. C., 161, ★568
Collens, W. S., 295, 300, 370
Collier, J. I., 453
Collis, E. L., 1377
Colmes, A., ★192
Colson, P., 973
Colwell, H. A., 968
Comfort, M. W., 1047
Compere, E. L., 1995
Concepcion, I., 1942
Connell, W. K., 968
Conner, H. M., 79
Conner, L. A., 1125
Constam, G. R., 830
Constantin, J. D., 454
Constantinesco, S., 1947
Conte, G., 1215
Conti, F., 304
Conybeare, J. J., 1297
Cooke, R. V., 1537
Cookson, H., 303
Coombs, C. F., 302, 969, 1868
Coonse, G. K., 1865
Cooper, G., 231
Cooper, G. W., 692
Cooper, Z. K., 296
Cooperman, M. B., 1779
Cooperstock, M., 1373
Corbett, D. G., ★1261
Cordero, N., 1942
Cordes, E., 699
Cordes, F. C., ★655
Corn, E., 76
Cornbleet, T., ★1743
Cornil, L., 1056, 1211
Cosack, G., 241
Costa, A., 165
Costantini, P., 376
Coste, F., 1623
Cottalorda, J., 1539
Cottrell, J. C., 1944
Coughlin, W. T., 152
Coulter, J. S., ★1342
Counseller, V. S., ★983
Cowan, J., 303
Cowie, D. M., 1373
Cox, R. L., 444
Coyne, J. A., ★335
Crabtree, E. G., 295
Crämer, F., 902
Craig, C. F., ★10
Crance, A. M., 297
Crane, W., ★261
Crawford, A. S., ★1096
Crawford, R., 1619
Creed, E., 968
Creutzfeldt, H. G., 1461
Creyssel, J., 973, 1135
Crile, G. W., 1619
Crocket, J., 1380
Crosby, E. H., 754
Cros-Decam, 1133
Crossen, H. S., 153
Crothers, B., 1126
Crowe, H. W., 1048
Cruickshank, R., 1996
Cubitt, A. W., 1052
Cucco, G., 1949
Cuff, J. R., 1206
Cullen, G. E., 1864
Cullinan, E. R., 1946
Culotta, A., 456
Cunningham, J. T., 1621
Curri, D., 900, 1138
Curschmann, H., 167, 697, 976
Curtis, S. H., ★1588
Cynman, B., 1139
Czygan, H., 167
Czyhlarz, E., 1387

D

Dabasi, E., 1543
Dafoe, W. A., 1203
Dagnini, G., 1625
Dahl, B., 1306
Dahl-Iversen, E., 702
Dakin, W. B., ★1822
Daland, E. M., 1619
Dale, M. L., ★316
Dale, T., 1060
Damblé, K., 306
Dameshek, W., 1940
Dandy, W. E., 230, 824
Danglade, J. H., 556, 1698
Danielopolu, D., 830
Dannheisser, F., 1138, 1784
Dannreuther, W. T., 1866
Dassen, R., 238
D'Aunoy, R., ★97
Davidoff, L. M., 1619
Davidson, D. L., 622
Davidson, E. C., 1941
Davidson, L. S. P., 827
Davies, D. T., 1781
Davies, G. I., 454, 455
Davis, A. A., 1458
Davis, D. (Boston), 229
Davis, D. (Richmond, Va.), 628
Davis, D. J., ★264
Davis, J., 1454
Davis, J. S., 623
Davison, C., 228, 297, 1910
Dawley, W. A., 1293
Dawson, M. H., 1018, ★1894
Day, L., ★995
Day, P. L., 1456
Dayton, N. A., 1050
Deaver, J. B., ★1641, 1699, 1776
Debenedetti, R., 696
Debré, R., 1133
Decastello, A., 1876
Decker, H. R., 895
Degos, R., 1947, 1948
DeGraff, A. C., 443, ★1237
Deicher, H., 1874
Delagenière, Y., 1211
Delalande, J., 455
Delehanty, E., 230
Delore, X., 972, 1540
Delprat, J. P., 1773
Demel, R., 1059
Deming, C. L., ★251
Demmond, E. C., 76
Denéchau, D., 1299
Dennie, C. C., ★1571
Derby, G. S., ★913
de River, J. P., 372
Desjacques, R., 973
Desjardins, A. U., 690
Desmarest, 1133
D'Esopo, L. M., 449
Dessylla, C., 305
Devlet-Kildeeva, M. D., 1545
Deweese, E. R., 156
Diamant-Berger, L., 1055
Diamond, L. K., 446
Diard, L., 696
Dickens, F., 628
Dickey, L. B., 1531
Dickinson, R. L., 287
Dickmeiss, P., 1464
Dickson, R. W., 1620
Dickson, W. E. C., 968
Diez Fernández, C., 1137
Dikshit, B. B., 1053
Dill, D. B., 449
Dilling, W. J., 1869
Dittrich, O., 900
Dittrich, R. J., 1376
Dixon, H. H., 963
Djørup, F., 638
Dobrzaniecki, W., 1871
Dochez, A. R., ★1553, 1941
Dock, W., 448
Dodds, E. C., 454, 1996
Dodds, G. H., 80, 694, 758, 1868
Dogliotti, A. M., 456, 696
Dold, H., 1951
Domanig, E., 84, 310
Don, C. S. D., 1210
Donalies, H., 634
Donath, J., 460
Donati, D., 237
Donelson, E., 367
ten Doornkaat-Koolman, M., 1953
Dorendorf, 1953
Dorrance, G. M., 961
Dorsey, A. H. E., 691
Dorst, S. E., 1048, 1862
Douay, E., 759
Douglas, B., 158, 301
Douglas, J., ★265
Douillet, M., 1135
Doumer, E., 971, 972
Dowman, C. E., 626
Downing, J. G., 1205
Doyle, L. P., 1206
Draganesco, S., 1460
Drake, C. B., 1206
Drake, T. G. H., 1773, 1773
Drennan, A. M., 1916
Dreyfus, G. L., 633
Drinker, P., ★1249
Drouet, P., 970
Drouet, P. L., 630
Du, S. D., 827
DuBois, E. F., ★1243
Duden, C. W., 449
Dünner, L., 310
Duesberg, R., 1704
Duff, D., 1867
Duffie, D. H., 1688
Dufour, J. L., 1997
Dufourmentel, L., 1211
Dufourt, A., 1055
Dugge, M., 241
Duke, W. W., 293
Dumarest, F., 1213
Dumas, A., 1623
Dumont, J., 81, 631
Dunn, A. D., ★794
Durham, O. C., 293
Duryea, A., ★1582
Dwyer, H. V., 232
Dyke, C. G., 446

E

Eagle, H., 1863
Eberson, F., 1773
Ebskov, C., 1878
Eby, J. C., 1130
Eckel, J. L., 296
Eckels, J. C., 1699
Ecker, E. E., 293, 1456
Eckhoff, N. L., 968
Eddy, B., 1773, 1995
Edel, H., 1303
Edgren, M., 1060
Edmondson, C. C., 1947
Edmunds, C. W., ★383
Edwards, H., 968
Edwards, H. T., 449
Eeg-Olofsson, R., 312
Egas Moniz, 1300
Ege, E., 1545
Egorov, K. A., 461
Ehrhardt, K., 832, 1627
Ehrich, W., 79
Ehrmann, R., 1875
Eichelter, G., 84
Eiken, T., 904
Eilers, W., 241
Eimer, K., 830, 900
Einhorn, M., 228, 1295
Eisler, M., 309
Eitel, H., 1544
Elbert, B. J., 970
Elder, O. F., ★257
Eley, R. C., 1126
Eliason, E. L., 1051
Eliot, C. P., 73
Elkeles, A., 699, 1998
Eller, J. J., ★1080, 1455
Elliott, B. L., ★106
Elliott, T. R., 970
Ellis, E. B., 961
Ellis, I. G., 1775
Ellis, L. B., 443, ★846
Elmer, A. W., 827
Elmslie, R. C., 758
Elrod, J. O., 75
Els, H., 1545
Elving, H., 901
Elvove, E., 1700
Emery, E. S., Jr., 1699
Emmert, F., 368
Enachesco, M., 1782
Engel, S., 762
Enriquez de Salamanca, F., 1626
Éparvier, H., 630
Epplen, F., 1017
Epstein, H. A., 1059
Erb, K. H., 1138
Erber, B., 81
Erdheim, S., 460
Erlich, M., 1213
Ernst, E. C., 757
Ernstene, A. C., 444
Eschbach, H., 1870
Esculies, J., 1876
Étienne, G., 81
Evans, E. L., 758
Evans, F. A., 77
Evans, M. J., 891
Everett, H. S., ★327
Exelby, P. A., 1378
Eyherabide, R., 975
Eyster, J. A. E., 440, 1697

F

Faber, K., 638, 764, 1951
Faelli, C., 1459
Fahr, G., 1454
Fain, S. C., 1945
Fairbank, H. A. T., 758
Fairbrother, R. W., 1781
Falcon-Lesses, M., 1445
Fallon, M., 72
Falls, F. H., 1453
Fallscheer-Zürcher, J., 236
Falta, W., 1874
Fansler, W. A., ★1969
Fanz, J. I., 1617
Farley, D. L., 1289
Farrar, L. K. P., ★1329
Farrington, P. R., 1048
Fast, W. K., ★1668
Fauley, G. B., 1376
Faulkner, J. M., 444, 450
Faulkner, R. L., 1208, ★1563
Faulkner, W. B., Jr., ★1325
Faust, E. C., 1620
Fay, T., 232, 826
Featherstone, H. W., 1616, 1945
Fedorov, P., 1789
Feeney, N., ★85
Feiermann, I. M., 307
Feinberg, S. M., 294, 1456, ★1665
Feldman, M., 1536, 1912
Feldman, W. H., 1862
Fell, B., 1078
Feller, A., 239
Fels, E., 1877
Felsen, J., 1127
Felsenreich, F., 1058
Felter, R. K., 1777
Fender, F. A., 229
Ferraro, F., 237
Ferrero, V., 1949
Ferru, 161
Fèvre, 1075
Fiddes, J., 759
Fiessinger, N., 696, 1301
Finaly, R., 1388
Findlay, G. M., 1537
Findlay, L., 1131
Findley, P., ★857
Fink, L. W., 1207
Finkelstein, B. K., 829
Finkelstein, L. O., 698
Finland, M., 79
Finner, L. L., 227
Finney, J. M. T., 1777
Finsterer, H., 307
Fiorini, E., 761
First, A., 300, 1203
Fischel, E., 152
Fischer, A., 830
Fischer, A. W., 1952
Fischer, R., 239, 460
Fisher, A. O., 155
Fisher, R. L., 232
Fitz, R., 891
Fitzgibbon, J. H., 368
Fitzhugh, G., 894, 1375
Flagg, P. J., 446
Flecker, H., 627
Fleischer-Hansen, C. C., 1790
Fleischmann, C., 1305
Fleming, G. B., 1780
Fletcher, W. M., 746, ★1389
Fleury, J., 1055
Fliederbaum, J., 1624
Fliegel, O., 1778
Flint, E. R., 373
Florand, J., 1133
Flothow, P. G., 1775
Fluhmann, C. F., 753
Foerster, O., 1209
Folliasson, 1055
Fontaine, R., 375, 1623
Fontela, J. M., 306
Forbus, W. D., 1863
Ford, R. K., 1946
Ford, W. W., 73
Forkner, C. E., 1378
Fornara, P., 561
Forsdike, S., 1458
Fort, A. G., 75
Forti, F., 1136
Foster, L. C., 961
Fountain, J. A., 76
Fowler, W. M., 74
Fox, H., 1376
Fox, R. F., 233, 1464
Francis, T., Jr., 1535
Francisco, C. B., ★1467
Frank, F. M., 1206
Frank, L. W., 158
Frank, R. T., 754
Frantz, R., 1134
Fraser, A. M., 303
Fraser, I., 1299
Fraser, K., 80
Frazer, A. D., 758, 896
Frazier, C. H., 369, ★1911
Frazier, W. H., 1700
Freeman, L., 1778
Freiberg, J. A., 1048
Fremont-Smith, M., 1207
Freudenthal, P., 904; (correction) 1706
Frey, E., 760
Frey, H., 380
Freye, 1875
Friedemann, U., 699, 1874, 1998
Friedenwald, J., ★905
Friedlander, M., 229
Friedman, E., 624
Friedman, J. C., ★1883
Frimann-Dahl, J., 978
Frisbee, F. C., 231
Frisch, I. A., 1374
Fritzsche, E., 1625
Fröhlich, A., 903
Froewis, E., 1953
Froment, R., 1382
Froyez, R., 1299
Fruchaud, H., 81
Fryszmann, A., 1544
Fukase, S., 241
Fulconis, H., 973
Fullerton, W. D., ★1563
Fulton, M. N., 965
Funk, E. H., ★1879
Futagi, Y., 1458

G

Gaarde, F. W., ★249
Gabriel, E., 377
Gager, L. T., 577
Gaines, T., 1129
Galang, J. S., 1157
Gallagher, T. F., 201
Gallagher, W. J., 152
Gamble, J. L., 1773
Gangler, J., 699
Gardère, C., 1381
Gardère, H., 1623
Gardiner-Hill, H., 758
Gardner, K. D., 863
Garelly, R., 1301
Gargill, S. L., 228
Garibdzanjan, G. A., 1781
Garlock, J. H., 1917
Garot, L., 1129
Garrelon, L., 455, 1815
Garry, G., 701
Garvin, J. D., ★1418
Gaszár, I., 1774
Gasul, B., 757
Gatewood, 1260, 1776
Gatto, I., 455, 627
Gault, E. S., 1017
Gauer, H., 227

Gauvain, H., 1132
Gay, F. P., 72
Gay, T. B., 75
Gayler, W. C., 155
Gazzotti, I., 1056
Geddes, A. K., 1616
Geddie, K. B., 961
Geer, E. K., 894
Gehlen, H., 830
Gehrels, E., 893
Geill, T., 1464
Geissendörfer, R., 168
Gemmell, A. A., 1869
Genner, V., 462, 1878
George, P., 1623
Georgievskaia, L. M., 562
Gerbasi, M., 1383
Geréb, S., 308
Gerhartz, H., 1217
German, W. J., 623
Gershon-Cohen, J., 1861
Gerstley, J. R., 689, ★1233
Gerth, 635
Gerulanos, M., 1952
Gibbon, J. H., 1777
Gibbon, J. H., Jr., 414
Gibson, C. L., 1289
Gibson, H. J., 695
Gibson, T. E., 623
Gichner, M. G., ★9
Giffin, H. Z., ★587
Gilardone, E., 239
Gilbert, M., 971
Gilbride, J. J., ★259
Gilchrist, A. R., 303
Gilkey, H. M., 170
Gilligan, D. R., 228
Gilman, L. H., ★776
Gilman, P. K., 1290
Gilman, R. L., 1205, 1290
Ginsbourg, 1870
Ginsburg, S., 1291
Gioia, T., 1216
Giordanengo, G., 974
de Girardier, J., 972
Giua, L., 899
Givan, T. B., 556, 1697
Gjessing, H. C., 1060
Gjessing, H. G. A., 1306
Glaser, J., 1773
Glaser, M. A., 626
Glassberg, B. Y., 1939
Glazier, M. M., 1457
Glenn, J. E., 156
Glenny, A. T., 1131
Gloor, W., 1059
Glover, E. C., 690
Goadby, K. W., 1377
Godard, P., 1054
Goeckerman, W. H., 1533
Gørtz, S., 382
Goinard, P., 1134
Gold, H., ★1237
Goldberg, B., 755
Goldblatt, H., 449
Goldbloom, A., 963, 1619
Goldemberg, L., 1782
Goldenberg, H., 1689
Goldenberg, M., 1876
Goldhaft, A. D., 1289
Goldhahn, R., 1303
Goldring, W., 449
Goldschmidt, E. F., 901
Goldsmith, H., 1775
Goldstein, L., 300, ★173, 1203
Goldwasser, R., 1456
Goldzieher, M. A., 295, 300, 370, 700
Gollwitzer-Meier, K., 458
Gomez, D. M., 1948
Goodyear, H. M., ★1002
Gordon, M. H., 302
Gordon, R. G., 453
Gordon-Taylor, G., 968
Gorham, L. W., 72
Gorter, E., 978
Gosio, R., 1136
Gosset, A., 235
Gottesman, J., 1943
Gottlieb, E., 461
Gottlieb, J., 381
Gottlieb, R., 963, 1619
Gottschalk, A., 379
Gounelle, H., 1538
Goussakoff, L., 759
Govaerts, J., 1870
Gradle, H. S., ★774
Gradwohl, M., 1951
Graf, L., 1216
Graham, G. M., ★1834
Gram, H. C., 312, 1630
Grandjean, E., 1540
Granger, A., ★1332
Grann-Petersen, A., 1630
Grant, O., 626
Gray, H. T., 453
Greeff, J. G. W., 965
Green, B., ★400
Green, T. M., 1291
Greenbaum, S. S., 815
Greenberg, D. M., 229
Greenfield, J. G., 1132
Greenhill, J. P., 78
Greenthal, R. M., 1374
Greenwood, H. H., 628
Greer, A. E., ★863, 1862
Greig, D. M., 1380
Greisheimer, E. M., 621
Greppi, E., 761
Grey, F. T., 453, 694
Grierson, A. M. M., 162
Griesbach, R., 459, 1877
Griffin, M. A., 757
Grigoresco, D., 1460
Grill, J., 691
Grinker, R. R., 296
Groover, T. A., 361
Gross, R., 378
Grosskopf, H., 631
Grote, F., 828
Gruber, C. M., 1294
Grüneberg, 901
Gruhn, E., 1952
Grund, J. L., 450, 693
Guaraldi, B., 761
Guassardo, G., 1541
Guazzieri, G., 1950
Gudjonsson, S. V., 1464
Guerkess, W. M., 970
Guerrero, L., 1942
Gueullette, R., 1299
Guillemin, A., 1459
Guiraud, R., 1213
Guldberg, E., 638
Gullotta, S., 699
Guns, P., 1382
Gunther, L., 229, 1375
Gurdjian, E. S., 623
Guthrie, K. J., 1053
Guthrie, R. H., 1531, ★1912
Guttmann, L., 902
Guy, W. H., ★979
Guyot, J. De V., 154
Guzzini, M., 975
Gwathmey, J. T., 1051
Gwyn, N. B., 691, 1531

H

Haaland, M., 978
Haas, M., 380
Haas, S. L., 371
Haase, W., 829
Haberland, H. F. O., 900
Hadenfeldt, H., 170
Hadley, E. E., 445
Hadley, F. P., 1373
Häggström, P., 1790
Hagstrom, H. T., 78
Halbfas-Ney, P., 1706
Hall, E. M., 371
Hall, G. W., ★703
Hallman, B., ★264
Halpert, B., 373
Ham, A. W., 1778
Hamant, A., 630, 1056
Hambrecht, L., ★263
Hamburger, C., 1164
Hamburger, M., 1702
Hamer, E. E., ★661
Hamilton, J. F., 162
Hammerschlag, S., 1705
Handley, W. S., 1622
Hanford, J. M., 622
Hanna, M. A., 153
Hanrahan, E. M., Jr., 623, 1777
Hansen, J., 1951
Hansen, N., 1630
Hansen, O. S., 1204, 1204
Hansen-Prüss, O. C., 538
Hanser, R., 1951
Hanser, T. H., 154
Hanson, M. B., 1536
Hanzlik, P. J., 1205, 1533
Happel, P., 1629
Harbin, R. M., Jr., 75
Hard, D. G., 1373
Harild, S., 832, 1464
Harkins, M., 815
Harpøth, H., 312, 1878
Harris, H. L., 1155
Harris, I., 970
Harris, K. E., 373
Harris, R. I., 1779
Harris, T. H., ★94
Harrison, P. W., 1863
Harrison, T. R., 824, 1863, 1864
Harrold, C. C., 76
Harrop, G. A., Jr., ★647
Hart, D., 1129
Hart, E. B., 160, 160
Hart, P. D., 694
Hartmann, W., 95, 977
Hartung, E. F., ★1265
Hartwell, J. A., 1777
Hartwell, S. W., 623
Harvey, E. A., 1289
Harvey, S. C., 158
Hasley, D. E., 231
Hassmann, K., 1787
Hauser, A., ★94
Havens, L. C., 298, 1206
Hawkes, H. E., 159
Hawks, J. E., 1128
Hay, H. R., 162
Hayden, E. P., 895
Hazato, H., 1211
Hazeltine, M. E., 1777
Head, J. R., 230, 299
Headland, C. I., 1942
Heath, C. W., 163, 1289
Heathcote, R. St. A., 627
Hebert, G. T., 1458
Hébert, J., 1213
Hedvall, E., 904
Hegna, H., 978
Heile, 1544
Heim, K., 311, 1381
Heimbeck, J., 761, 1306
Hein, J., 166
Heinonen, O., 638
Heitz, J., 973
Hejda, B., 445
Hekimian, I., 227
Held, A., 1952
Held, J., 1211
Hellenschmied, R., 169
Hellström, J., 702
Helmholz, H. F., ★707
Hempelmann, T. C., 152
Hemsley, J. C., 1210
Hench, P. S., 1378
Henderson, H. B., 230
Henderson, M. S., 1378, ★1653, 1914
Henderson, V. E., 962, 1616
Henderson, Y., ★572, 1415
Hendon, G. A., 159, ★1175
Hendriksen, V., 1706
Hennequin, 1211
Henry, A. K., 627
Hentschel, H., 1786
Herbain, M., 696, 971
Herd, S. B., 758
Herman, K., 1704
Hernández, L. G., 896
Herrick, J. B., ★1631
Herrmann, E., 380
Herrmann, G. R., 557, ★1472
Herrmannsdorfer, A., 170, 977
Hershey, E., 1127
Herxheimer, K., 1629
Herz, A., 1876
Hess, A. F., 622
Hess, E., 895
Hess, J. H., ★316
Hettfleisch F., 1217
Heubner, W., 238
Heuser, C., 1058
Heusser, H., 903, 1139
Hewer, T. F. R., 694, 1536
Hiden, J. H., 628
Hieger, I., 373
Higgins, H. L., 826
Highman, W. J., ★1158
Highsmith, J. D., 1129
Higoumenakis, G. K., 1627
Hilarowicz, H., 831
Hilbert, J. W., ★1021
Hildebrand, G. J., 622
Hill, A. V., ★1393
Hill, H. G.: See Gardiner-Hill, H.
Hill, J. H., ★27
Hill, L. G., 1781
Hill, M. C., 689
Hill, N. G., 80, 452, 1458
Hill, T. R., 374
Hiller, F., 459
Himebaugh, L. C., 1047
Himmelmann, W., 1513
Hindle, E., 1537, 1780
Hines, L. E., 438, 1698
Hinglais, H., 1870
Hinton, C. C., 77
Hinton, J. W., 1203, ★1711
Hirschfelder, A. D., 220
Hirsch-Kauffmann, H., 1161
His, W., 166
Hitchcock, C. H., 1531
Hjort, E., 1060
Hochrein, M., 83, 227
Hochstetter, 762
Hodgdon, M. E., ★923
Hodges, F. M., ★833
Hoede, K., 763
Hoedemaker, E. D., ★91
Hoeffel, G., 1373
Högler, F., 1874
Høst, H. F., 1060
Hoffman, R., 681
Hoffmann, F., 1388, 1626, 1627
Hoffmann, V., 1543, 1513
Hoke, E., 1629
Holbøll, S. A., 461, 702, 764, 1954
Holfelder, 1952
Holland, W. W., 1943
Hollingsworth, E. W., 1867
Hollister, G., 967
Holloway, T. B., ★463
Holly, L. E., 1861
Holm, A. J., ★393
Holm, E., 382, 832
Holm, G. E., 1126
Holmes, A. D., 895
Holmes, M. B., 1130
Holst, P. M., 978
Holt, E., 1125
Holten, C., 84, 312
Homans, K. A., 1865
Homma, H., 900
Hopkins, H. H., ★1637
Hoppert, C. A., 160
Horgan, E., 300
Horine, E. F., 555, 1129, 1697
Hornback, E. T., 156
Horner, W. D., ★655
Hornung, R., 1461
Horsley, J. S., 1776
Hortolomei, N., 1212
Horwitz, W. A., 1940
Hoshizaki, S., 1158
Hoskin, J., 896
Hoskins, R. G., 1292
Hosoi, K., 157, 157, 370, 689
Houck, G. H., 1126
Howe, H. A., 1294
Howell, J. C., 369
Howes, E. L., 158
Howitt, B. F., 371
Howitt, F., 453
Hu, Ch'Uan-Ku'Ei, 629
Huang, K. K., 629
Huard, P., 972
Huber, H. L., 293
Hubster, C., 1459
Hueper, W. C., 825, ★1113
Hufschmid, W., 1461
Hug, I., 1126
Huggins, C. B., ★652, 689
Hughes, S. E., Jr., 826
Hull, F. E., 756
Humber, J. D., 1376
Humphris, F. H., 1623
Hunner, G. L., ★327
Hunscher, H. A., 367
Hunt, H. D., 72
Hurst, A. F., 696
Hurst, E. W., 1916
Hurxthal, L. M., 1910
Hutchison, R., 691
von Hüth, T., 300
Hyman, A. S., 1289, 1453, 1617, 1939
Hyndman, C. E., 155

I

Iacobæus, H., 312
Iannè, C. L., 297
Iason, A. H., 627
Iépuréano, P., 759
Ignacio, P., 1912
Inglima, G., 1136
Inglis, J., ★1262
Ingraham, R., 441
Inlow, W. D., 623
Invernizzi, G., 1783
Ipsen, J., 461
Ireland, M. W., 1415
Iribarne, J., 1950
Irland, R. D., 156
Irons, E. E., ★213
Irving, D. H., 629
Irving, F. C., 751
Isaacs, R., 73, ★585
Isaak, L., 1629
Ishiyama, F., 700
Israelski, M., 700
Ives, J. E., 161
Ivy, A. C., 1047, ★1068, 1376
Izar, G., 1625

J

Jacarelli, E., 1872
Jaches, L., ★1409
Jackson, C. L., ★639, ★1322
Jackson, E. D., 1869
Jackson, H., Jr., 74
Jackson, S., ★1669
Jacobi, J. (Bonn), 634, 1875
Jacobi, J. (Giessen), 1386
Jacobi, M., 1126, 1128, 1374
Jacobsen, A. W., 448
Jacobsen, H. H., 1878
Jacobsen, O., 461
Jacobsen, V. C., 689
Jacobson, A. L., 1047
Jacoby, R., 450
Jæggy, E., 1214
Jaffe, H. L., 1628, 1941
Jaffé, K., 459
Jagić, N., 763
Jahiel, R., 1782
Jahn, D., 1785
Jahoda, S., 1461
Jaisohn, P., ★1097
James, T. G. I., 1781
Jameson, E. M., ★13, 622
Jamison, S. C., 557
Jancke, C. E., 1305
Janu, S., 1214
Jarotzky, A., 1214
Jarvis, B. W., 1995
Jarvis, K. M., 1373
Jay, P., 1373
Jehle, L., 460
Jellinek, S., 83
Jenkins, C. E., 1297
Jenkinson, E. L., 1775
Jenny, E., 1998
Jensen, C., 978
Jensen, J., 1125
Jensen, J. P., 901
Jepson, P. N., 159
Jersild, O., 1464
Jervell, O., 382
Jeter, H., ★112
Jewett, C. H., 1939
Jiménez Diaz, C., 165, 305
Joachimovits, R., 1464
Joannides, M., 824
Jobling, J. W., 230
Jofré de Villegas, F., 1384
Johansen, A. H., 462, 638, 901
Johnson, C. A., ★576
Johnson, J. G. W., 448
Johnson, L. D., ★662
Johnson, W. C., 1940
Johnson, W. W., 1205
Johnston, C., 79, 1864
Johnston, H. W., 452
Johnston, J. M., 368
Johnston, L. B., ★1587
Johnston, M. M., 962, 962
Jokl, E., 700
Joltrain, E., 696
Jona, J. L., 627
Jones, E. W., 1380
Jones, H. W., 73
Jones, N. W., 1532
Jones, T. B., 300
Jones, T. E., ★1172
de Jong, J. J., 1703
de Jongh, C. L., 978
Jordan, F. M., 77
Jordan, L. R., 1536
Jordan, S. M., 1865
Jorstad, L. H., 757
Joseph, E., 1545
Juarros, C., 1137
Juckelson, M. B., 636
Judd, E. S., 301, ★1061, 1777
Judin, S., 1784
Jüllch, S., 1463
Jugenburg, A., 309
Jumon, H., 1299
Junghanns, H., 1058
Justin-Besançon, 696
Juul, J., 638

K

Kähler, H., 633
Kahlmeter, G., 1790
Kahn, I. S., 228, 1127
Kahn, M. H., 227
Kahn, S., 227
Kaiser, A. D., ★837
Kaiser, H., 168
Kalf-Kalif, M. Y., 764
Kaminsky, J., 622
Kanersky, S. S., 637
Kantor, J. L., 690
Kaplansky, S. I., 637
Kapsinow, R., ★409
Karelitz, S., 79
Karfiol, G., 1386
Karnosh, L. J., ★410, 1534
Karp, M., 1306
Karsner, H. T., 1774
Katz, T., 972
Kaufmann, B., 239
Kaulich, L., 1140
Kaunitz, J., 157
Kay, H. D., 452
Kay, J. H., 303
Kay, M. B., 1049
Kay, W. E., 893, 1290
Keene, F. E., ★1164, 1203
Keith, H. M., ★707
Keith, N. M., 1454
Kellam, J. W., 967
Kellaway, C. H., 1537
Keller, O., 764, 904
Keller, W. L., 370
Kempf, G. F., ★776
Kennaway, E. L., 373
Kennedy, A. S., 962
Kerl, W., 1218
Kernohan, J. W., 1454
Kerr, W. J., 1375
Kevdin, N. A., 562, 632
Keynes, G., 1622
Kiehnhoff, G. W., 627
Kilbourne, N. J., ★787
Killian, H., 168
Kimbrough, R. A., Jr., ★1164, 1203
King, E. L., ★1472
King, F. W., 1204, 1204
King, H. N., 1534
King, J. T., Jr., 621
Kingreen, O., 380
Kirby, F. J., ★404
Kirch, A., 378
Kirkbride, M. B., 964
Kirkegaard, C., 1546
Kirklin, B. R., ★1966
Kirschner, M., 167
Kisch, F., 1874
Kiser, E. F., ★14
Kiss, F., 1293

AUTHOR INDEX

Kissel, P., 1211
Kisthinios, N., 1948
Kjer-Petersen, R., 1878
Klages, F., 973
Klason, T., 1878
Klein, R. I., *316
Kleinschmidt, H., 82
Klem, A., 1306
Kletzien, S. W. F., 160
Kligler, I. J., 1456
von Klimkó, D., 1543
Klinge, A., 976
Klissurow, A., 699
Klotz, O., 1377, 1698
Klumpp, T. G., 1864
Knapp, P., 1949
Knospe, H., 1705
Knowles, R., 1053
Knox, L. C., *1813
Knutsson, F., 462
Kobacker, J. L., *266
Koch, S. L., 1943
Kochmann, M., 238
Köhler, R., 1627
König, F., 242
Kofman, S., 1779
Koff, A. K., 1203, 1773
Kohlhaas, F., 1786
Kohn, H., 1784
Kollert, V., 1059
Kolodny, A., *1020
Konrich, 828
Koressios, N. T., 975
Korns, H. M., 368
Kornzweig, A. L., 229
Kortzeborn, A., 242
Kosdoba, A. S., 240
Koster, H., 295, 300, 370
Kostyál, L., 1787
Kountz, W. B., 755
Kovács, G., 376
Kovács, N., 309
Kowarschik, J., 170, 311
Kracke, R. R., *780
Kraft, R. M., 753
Kramer, S. D., 298, 298, 1535
Kramsztyk, S., 1787
Krebs, C., 462
Kreibig, W., 1304
Kretschmer, H. L., *179, *1728
Kreuscher, P. H., 825
Krikorian, K. S., 234
Kristenson, A., 832
Kroglus, A., 310
Krumeich, A., 634
Krusen, F. H., 159
Kühnel, P., 1954
Kugelmann, B., 1386
Kuhlefelt, E., 1060
Kundratitz, K., 1462
Kuré, K., 901
Kurotchkin, T. J., 629, 1538
Kurts, C. M., 440
Kurtz, A. D., *1586
Kurtz, C. M., 1697
Kusmin, S., 900
Kusnetzow, W. N., 376
Kusnezow, N. W., 239
Kutschera-Aichbergen, H., 633, 1705
Kwong, 1134
Kyger, F. B., 153

L

Labbé, M., 303, 696, 970, 1135, 1539
Labhardt, A., 236
Lacassie, 81
Lacey, J. T., 962
Läwen, A., 1462, 1951
Laferty, J. M., 78
Laffont, A., 974
Lagen, J. B., 1375
Lahey, F. H., *313, 1777, *1975
Laignel-Lavastine, 1947
Lambin, P., 1055
Lampert, H., 83, 83
Lamson, P. D., *663
Landau, A., 1211
Landis, E. M., 374
Landon, J. F., 1531
Lane, C. G., 286
Lane, D. E., 1126
Lane, E. A., 965
Lane, J. E., *717
Lang, K., 901
Lange, B., 1387
Langen, B., 1628
Langstein, L., 82
Langworthy, O. R., *107, 231
Lapasset, 972
Lapidus, P. W., 825
Larkin, A. J., 826
Laroche, A., 972
Larregla, S., 1137, 1460
Larson, L. M., 367
Lasersohn, M., *199, 1457
Lash, A. F., 1453
Lassen, H. C. A., 1297
Lastra, E. T., 1950
Laszlo, D., 308
Latzko, W., 763
Laubry, C., 971, 1134, 1539
Laudat, M., 971
Laughton, N. B., 1377
Laurell, H., 701
de Lavergne, V., 696
Lawrence, C. H., Jr., *1148
Lawrence, R. D., 1131, 1701
Lazarević, V., 1877
Lazell, E. W., 1130
Leader, S. D., 79
Leahy, A. D., 1126
Leake, C. D., 1615
Learmonth, J. R., 1866
Leavell, H. R., *860
Lebedewa, M. A., 977
Lebensohn, J. E., 1455
Lebermann, F., 701
Leddy, E. T., 894
Lederer, M., *407, 627, 1127
Lee, W. E., 158
Leech, C. B., *932
Leendertz, G., 900
Le Ferre, L., *1669
LeFerre, R. G., 297
Le Floch, P., 1212
Le Gac, 1133
Lehmann, J., 636
Lehmann, K. B., 1950
Lehmann, W., 1543
Leibly, F. J., 368
Lemaire, A., 1948
Lemann, I. I., 74, 892
Lemierre, A., 971, 1997
Lenhartz, H., 240
Lennox, W. G., 296, 1939
Leo, E., 761
Lepennetier, F., 303
Lereboullet, J., 759
Leriche, R., 375, 760, 972, 1623
Lerman, J., 895, 1207
Leschke, E., 1876
Leuret, E., 1214
Levaditi, C., 695
Levi, D., 629
Levin, I., 1774
Levin, M., 1699
Levine, B. S., 1866
Levine, S. A., *85, 443, 754, 1289, 1697, 1865
Levine, U. E., 1878
Levinger, S., 1788
Levington, H. L., 76
Levy, I. J., 1296
Lévy, M. M., 1055
Levy, R., 828, 1702
Lewin, A., 1952
Lewis, D., 824
Lewis, J. M., *4
Lewis, K. M., 1292
Lewis, M. R., 753
Lewis, S. J., 559
Lewis, T., 374, 374
Lewy, B., 1058
Leyton, O., 302
Li, C. P., 1537
Li, Y. P., 695
Lian, C., 375
Libert, E., 631
Lichtmann, E., 634
Lichtwardt, H. A., 624
Lickint, F., 635
Liébault, G., 1381
Lieberthal, F., 300
Liebig, H., 1059
Liège, 1055
Light, R. U., 1296
Lighthill, J. A., *576
Lilien, A. A., 1533
Lim, C. E., 629, 1538
Linde, R., 310
Lindemann, P., 1303
Lindemulder, F. G., 825
Lindsay, J. W., 966
Linton, R. R., 158, *183
Liotta, D., 1300
Lipets, I. M., 1629
Lippmann, A., 1385
Littlejohn, D. M., *1975
Livermore, G. R., 1130
Livingston, W. K., 443
Lloyd, W., 1377
Lobban, J. W., 1538
Locke, E. A., 1050
Löhr, 699
Loeper, M., 1135, 1947, 1948
Lørset, J., 382
Löwenstein, E., 1629, 1787
Loewy, I. D., 967
Lo Grasso, H., 1778
Lomon, A., 828
Long, C. N. H., *715
Long, E. R., 689, 1862
Longcope, W. T., 1941
Longuet, J., 164
Lonsway, M. J., 151
Lopatschuk, F. P., 562, 632
Loránd, S., 310
Lorentz, F. H., 1951
Lossen, H., 1385
Lottig, H., 459
Loucks, R. E., 1290
Lowen, H. J., 1617
Lozzi, V., 1703
Lubinski, H., 241
de Luca, B., 1541
Lucas, E., 700
Lucca, A., 376
Luckhardt, A. B., *576
Ludlum, S. D., 296
Lueth, H. C., 228
Luisada, A., 761
Lund, T. M., 462
Lunge, E., 904; (correction) 1706
Lupen, A., 1214
Luria, R., 1385
Lutembacher, R., 376
Lutz, J. R., *1961
Lyddane, E. S., 445
Lydtin, K., 310
Lyman, J. F., 753
Lynch, K. M., *659
Lynch, R. C., *1795
Lyon, D. M., 233, 969
Lyon, G. M., *109
Lyon, R. M. M.: See Murray-Lyon, R. M.
Lyons, D., 1373

M

Macallum, A. B., 1377
McCahey, J. F., 368
McCance, R. A., 1131
McCann, J. C., 300
MacCarty, W. C., 963
McCay, F. H., 897
McCloud, C. N., 372
McClugage, H. B., 77
McConnell, W. T., 446
McCord, J. R., 621
McCord, M. M., 75
McCrea, E. D'A., 968
McCulloch, H., 1698
McDonald, H. P., *257
McDonald, S. F., 695
McDowall, R. J. S., 827
McEachern, D., 1863, 1864
McEredy, P., 1781
McEwen, C., 1531
McFadyean, K., 1132
McGee, H. H., 76
McGee, W. A., 301, 966
McGoogan, L. S., 1454
McGowan, J. P., 234, 1052, 1380
MacGregor, A. S. M., 1458, 1945
McGregor, L., 157
Mach, R. S., 973
McHargue, J. S., 756
McIntyre, M. C., 1205
Mack, H. C., 1866
MacKay, E. M., 79
McKay, R. W., *794
MacKee, G. M., *1315
McKenna, J. B., 1292
MacKenna, R. M. B., 80
Mackey, W. A., 1868
McKittrick, L. S., 1863
Mackmull, G., 1204
McLachlan, D. G. S., 1132
MacLachlan, W. W. G., 72, 1454
McLanahan, S., *1424
McLean, C. C., *1338
MacLeod, A. G., 1125
McLester, J. S., *719
McLoughlin, G., 970
MacMahon, H. E., 158
McManus, M., 368
McMeans, J. W., 439, 1697
MacNeal, W. J., 231
McNealy, R. W., *19
Macomber, D., 621
Macome, J. H., 1137
MacRae, O., 694
McVicar, C. S., 77
McWhorter, G. L., 301
McWhorter, J. E., 1292
Macy, I. G., 367, 1049
Madders, K., 1701
Madlener, M. J., 900
Maes, U., 1943
Magat, M. A., 1630
Magath, T. B., 1862
von Magyary, K., 1786, 1877
Maher, C. C., 1697
Mahrburg, S., 635
Mairano, M., 456, 696
Maisin, J., 973
Majanz, J., 700
Makkas, M., 636
Malamud, T., 681
Malczyński, S., 459
Malis, S., 1293
Mallard, R. S., *332
Mallet-Guy, P., 1624
Mallory, G. K., 1207
Malpas, P., 453
Maltaner, E. J., 1862
Mamedov, Z., 461
Manace, G., 689
Manchaca, F., 1460
Manderville, F. B., 757
Mandl, F., 1304, 1544
Mandry, O. C., 367
Mann, F. C., 1374, *1722
Mann, W., 1302
Mansur, E. E., 301
Manuilow, A., 240
Maranon, G., 375
Marbaker, N. D., *1955
Marcialis, G., 1137
Marcus, M., 700, 700
Marfan, A. B., 898, 898, 1947
Marginesu, P., 1998
Margolis, H. M., 691
Marín Amat, M., 1384
Marinesco, G., 1460
Marks, J. A., 690
Marque, A. M., 166
Marri, P., 632
Marsella, A., 1703
Marsh, P., 1773
Marshall, A. J., 303
Marshall, D. C., 1205
Marshall, J. M., 301, *1061
Marti, E. W., 1195
Martin, B., 831
Martin, C. J., 1458
Martin, C. L., 1290
Martín, F., 1216
Martin, H. E., 961
Martin, J., 1135
Martinez, D. B., *923
Martínez Zuviria, E., 1460
Martland, H. S., 439, 1697
Martzloff, K. H., 78
Masciottra, R. L., 1542
Mason, M. L., 1943
Massart, R., 1624
Massé, 235
Masson, J. C., *765
Mathé, C. P., 964
Mathieu, R., 898, 1055
Matry, 1055
Matson, R. W., 622
Matters, R. F., 897
Matthews, H. B., *1707
Matthieu, J., 1130
Mattick, W. L., 963
Mattill, H. A., 756
Matusis, P. J. A., 296
Matz, P. B., 451
Mau, W., 1704
Maurer, E., 635
Mauric, G., 560
Maurizio, E., 828
Mauz, F., 458
Maxwell, J., 969
Mayer, K. (Berlin), 1789
Mayer, K. (Frankfort), 379, 633
Mayer, L., 825, 1779
Mayer, M., 1134
Mayerhofer, E., 1544
Mayers, L. H., 1536
Mayes, H. W., 1208
Mayfield, C. R., 298
Maynard, F. P., Jr., 441
Mayo, C., Jr., 300
Mayo, W. J., *644
Mazo, L., 1543
Mazylo, S. N., 461
Mazza, S., 1541
Mazzetti, M., 1872
Mazzini, O. F., 1137
Mazzola, V., 1774
Meaker, S. R., *468
Means, J. H., 74
Mecklenburg, M., 900, 977
Mehrtens, H. G., 1205, 1533, *1910
Mehta, M. M., 453
Meigs, J. V., 895, 1943
Meissner, R., 762
Mellinger, H. V., *662
Melnik, M., 1789
Mendel, L. B., *395
Menees, T. O., 1861
Menne, F. R., *1647
Menninger, W. C., *1499
Menon, T. B., 1073
Mériel, P., 455
Merritt, H. H., 692
Mertens, V. E., 1304
Mesa, C., 238
Messer, W. H., *1
Mettenleiter, M. W., 965
Mettler, S. R., 449, *1089
Meulengracht, E., 462, 761, 901
Meyer, A., 701
Meyer, A. H., 626
Meyer, H., 1783
Meyer, J., *1883
Meyer, P. I., 1461
Meyersburg, H., *1311
Michaels, J. J., 228, 247
Michailowa, S. I., 239
Michaux, L., 560, 696, 1135
Michelson, I. D., 1621
Micks, R. H., 1868
Middleton, D. S., 1867
Middleton, R. P., 444
Midulla, C., 765
Miescher, G., 766
Migel, A., 1947
Mihailesco, G., 236
Miklòs, L., 1060
Mikulowski, W., 637, 1380, 1872
Milhaud, M., 1380
Milhorat, A. T., 1865
Millar, H. R., 1701
Miller, C. J., 1210
Miller, E. G., Jr., 1456
Miller, H., 293
Miller, H. A., *923
Miller, H. E., 1377
Miller, J. D., 1861
Miller, J. L., *464
Miller, J. W., *97
Miller, N. F., *1796
Miller, O. O., 158
Miller, R. L., 75
Millikan, G. B., 816
Mills, C. A., 1939, 1939
Mills, K. C., *1553, 1941
Milne, V. E., 1945
Minehart, V. L., 1867
Minot, G. R., 73, 163, *1089
Mintz, W., 637
Miskolczy, D., 699
Mitamura, T., 1210, 1211
Mitchell, A. G., 1773, 1995
Mitchell, E. C., *1896
Miyagawa, Y., 1459
Miyasaki, S., 238
Mock, H. E., *31
Møller, H. U., 382
Möllerström, J., 977
Moen, E., 978
Moerke, G., 823
Molander, C. O., *1342
Moleen, G. A., *910
Molesworth, H. W. L., 1868
Molinengo, L., 1215
Moll, L., 1056
Mollard, H., 1213, 1702
Mollow, W., 377
Moloney, J. C., *1096
Mombaerts, J., 972
Monasterio, G., 457
Monasterio Odena, J. R., 238
Moncrieff, A., 1622
Mondini, E. M., 561
Mondry, 1543
Monferini, E., 1873
Monier-Vinard, 1055, 1133
Moniz, E.: See Egas Moniz
Monjardino, J., 630
Monnerot-Dumaine, 81
Monod, O., 375
Monrad, 978
Monroe, J. D., 158
Montanari, A., 1625
Montgomery, A. H., 1208
Montgomery, J. C., 1995
Montgomery, T. L., 1866
Moon-Adams, D., 1697
Moore, A. B., *1966
Moore, B. H., 825
Moore, D. M., 449
Moore, G. A., 1775
Moore, H. (Boston), 1867
Moore, H. (Dublin), 1131
Moore, J. E., 556, 1698, *1637
Moore, M., 692
Moore, R., 1995
Moore, S., *1957
Moorhead, J. J., *1494
Mora, J. M., 1373
Morales, E. G., 367
Morales-Otero, P., 896
Morawitz, P., 976
Moreau, 1055
Moreau, A., 971
Morgan, W. G., 155
Morison, J. M. W., 1131
Moriwaki, J., 1458
Morlock, H. V., 1781
Moro, L., 761
Morris, N., 694
Morris, R. S., 1862
Morrison, J. L., 369
Morse, J. L., *1645
Morse, P. F., 158
Morse, R. W., 1942
Mortensen, M. A., 1536
Morton, C. B., 295, 1294
Morton, E. D., 1780
Morton, H. M., *1801
Morton, J. J., 1861
Morton, S. A., 444
Morville, P., 461
Mosenthal, H. O., 71, 1531
Moses, F., 1873
Mosinger, M., 1056
Moss, E. S., 627
Mottram, J. C., 234
Motzfeldt, K., 382, 382
Moulonguet, P., 236, 1035, 1539
Moulten, C. R., 1762
Moyano Navarro, E., 1460
Mu, J. W., 628
Mühsam, R., 168
Müller, C., 84, 782
Müller, W., 1951
Mukherjee, B., 1055
Müller, C. L., 167

AUTHOR INDEX

Muller, P., 1951
Munro, D., 1295
Murard, J., 1134
Murphey, P., 626
Murphy, D. P., ★335, ★1249
Murphy, F. D., 691
Murphy, G. T., 824
Murphy, W. P., 1375
Murray, C. D., 891
Murray, E. F., 1621
Murray, H. G., 1619
Murray-Lyon, R. M., 233, 969
de Murtas, C., 899
Mussehl, F. E., 1281
Mussil, J. J., 1208
Mutermilch, S., 1133
Myers, G., ★406
Myers, J. T., ★794
Myers, W. K., 624

N

Nabarro, D., 1379
Naffziger, H. C., 626
Nagayo, M., 1210, 1211
Nalle, B. C., 162
Nanu-Muscel, I., 1702
Narducci, F., 304
Narr, F. C., 136
Nassau, E., 307
di Natale, A., 1136
Nathan, M., 1878
Nativelle, R., 1299
Navarro Gutiérrez, R , 1137
Naville, F., 898
Neal, M. P., 153
Neale, A. V., 452, 694, 1864
Nebesky, O., 562
Nechtadimenko, M., 1133
Nedok, M., 84
Neel, A. V., 1464
Neill, W., Jr., 1861
Nell, W., 1953
Neller, K., 1543
Nelson, H. P., 1622
Nelson, M. V., ★1896
Néri, V., 1948
Nervi, C., 1383
Nestmann, F., 1138
Netter, A., 1381
Neubauer, O., 83
Neuburger, J., 458
Neuda, P., 1785
Neumann, H., 1874
Nevinny, H., 306
Newcomb, C., 1053
Newman, K. O., 234
Newman, R. K., 629
Nicely, W. E., 1945
Nichita, V., 1054
Nichols, J. B., 445
Nickel, A. C., 227
Nicolas, G., 1139
Nicolaysen, K., 978
Nicolini, M., 305
Nicolson, G. H. B., 1697
Nielsen, H., 312
Nielsen, M., 832
Niles, H. D., 1533
Niles, W. L., 1289
Nims, B., 367
Nissen, N. I., 702
Nissen, R., 242
Nitschke, A., 1303
Noguer-Moré, S., 457
Nohlen, A., 166
Nomland, R., 445, ★1742
von Noorden, C., 1875
Nordland, M., 1866
Nordsted, A., 312
Norgaard, A., 312
Normand, E., 560
Norn, M., 764
North, J. P., 1051
Norton, J. F., 1456
Notkin, J., 1128
Novak, E., 1203, ★1221, 1773
Novak, M., 1788
Nowosseljzew, N., 1218
Nugent, R. L., 296
Nyberg, E., 1140
Nye, R. N., 1762
Nyfeldt, A., 312, 764, 1546, 1546
Nystrom, B., 638
Nystrom, G., 1776
Nystrom, R., 621

O

Obadalek, W., 904
O'Brien, E. J., ★650
Ocampo, M., 1942
Ochsenius, K., 379
O'Donovan, C., Jr., 449
Odrina, O., 1133
Ody, F., 164
Oehlecker, F., 899
Österreicher, W., 1785
Oetiker, L., 1138
O'Farrell, W. R., 1131
Ogden, W. E., 1862
Ogrinz, H., 903
Okada, R., 1459
Okada, S., 901
Oldenburg, F., 977
O'Leary, P. A., 445, 1533, 1620
Olef, I., 1939
Olivecrona, H., 832
Oliver, T., 1132
Olmer, J., 1212
Olmsted, H. C., 1699
Olow, J., 832
Oltramare, J. H., 630
Ombrédanne, L., 81, 973
O'Meara, R. A. Q., 1131
Opie, E. L., ★1151
Oriel, G. H., 897
Orlowitsch-Wolk, A., 829
Ornsteen, A. M., 1535
Ornstein, J., 560
Orosco, G. P., 1542
Osborne, R. P., 968
Osgood, R. B., ★992
O'Shea, H. V., 1052
Osman, A. A., 969, 1917
Ostenfeld, J., 1878
Ottendorf, 701
Ottensooser, F., 1788
Otto, G. F., ★194
Ottolenghi, D., 1625
Ottow, B., 381
Oudard, M., 631
Oullé, 1134
Oury, P., 1054
Overhoff, J., 1385
Overholt, R. H., ★1481
Ovtchinnikov, N. M., 1299
Owen, M., 1376
Ożereljeff, A. A., 1781

P

Pacetto, G., 376
Pachioli, R., 974
Pack, G. T., 228, 297
Page, I. H., 1627
Pagenstecher, G. A., ★1588
Palesa, O., 632
Palma, R., 305, 631
Palmer, D. L., 1532
Palmer, H. D., ★197
Palmer, W. L., 1127
Palomeque, E. J., ★472
Pancoast, H. K., 826, ★1318
Pansdorf, H , 1302
Pantz-Lazarescu, 1134
Pape, R., 900
Parada, A., 306
Pardee, H. E. B., 1375
Parent, S., 443
Parhon, C. I., 560
Parker, F., Jr., 74, 158, 895
Parker, M. L., ★1883
Parkinson, J., 1125
Parlato, S. J., 558
Parodi, F., 1054, 1056
Parsonnet, A. E., 1289
Parsons, J. P., 367
Pascalis, G., 455, 1918
Pasquier, V., 1624
Passot, R., 375
Paterson, J. E., 560
Patey, D. H., 1868
Patterson, M. B., 369
Pattison, C. L., 1052
Pauchet, V., 1133
Paul, W. D., 74
Paulson, M., ★198, 1617
Pausdorf, H., 1953
Pause, 379
Pavel, I., 1702
Pavlov, A. N., 296
Payne, R. L., ★1064
Payr, E., 170
Peacock, A. H., ★1261
Pearce, R. M., 1210
Pease, H. D., 1047
Pecco, R., 1949
Peck, F. B., 232
Peck, J. H., 1996
Pedersen, A. H., 1454
Peel, A. A. F., 1701
Peigneaux, 81
Peljak, F. J., 1306
Pemberton, J. de J., 961
Pemberton, R., 1289
Pendergrass, E. P., 1290
Penfield, W., 1209
Penfold, W. J., 629
Pennoyer, G. P., ★342
Pentschew, A., 377
Peola, F., 1215, 1541
Pereda Ramírez, E., 1873
Pérez-Caballero Palacios, C., 1998
Perkins, G., 758
Perla, D., 1943
Permar, H. H., 72, 1451
Perret, C. L., 971
Perrin, P., 970
Perrotti, G., 1460
Perry, C. B., 302
Perry, M. W., 77
Pescatori, F., 631
Peterman, M. G., 1126
Peters, J. P., 449, 449
Petersen, A. G., 462
Petersen, E., 461
Peterson, C. H., ★1307, ★1819
Peterson, E., ★171
Peterson, L., 1546
Petetin, J., 1782
Petit-Dutaillis, 164
Petit-Dutaillis, D., 235
Petitpierre, M., 1139
Petow, H., 1628
Petrén, G., 622
Petrovitch, Y., 1782
Pettit, J. A., ★1497
Petzetakis, M., 828
Pfab, B., 459
Pfahler, G. E., 1861
Pfalz, G. J., 1217
Pfannenstiel, W., 169
Pfaundler, M., 636
Pflomm, E., 831
Phatak, N. M., 1373
Phemister, D. B., ★995, 1778
Piana, G. A., 1057, 1540
Picard, E., 973
Pichat, P., 1381
Pickles, W. N., 80
Pieraccini, P., 164, 1384
Pierce, L. W., 76
Piersol, G. M., 1616
Pigott, M. G., 895
Pilcher, C., 1864
Pilot, I., ★264
Pinchin, A. J. S., 1781
Piness, G., 293
Pinner, M., 823
Pinto, A., 561, 1871
Pismarev, M. M., 1629
Pitts, H. H., 691
Plaschkes, S., 636, 901
Platou, E. S., ★1
Platt, H., 968
Plazy, L., 1212
Plonskier, M., 1463
Plummer, N., ★1263, 1374, ★1547
Poate, H. R. G., 1210
Pocock, J. A., 694
Pöhlmann, C., 308
Poinso, R., 1380
Pojarisky, F. I., 1630
Pokotilo, W. L., 1788
Polacco, E., 697
Polak, J. O., 1774
Polayes, S. H., ★407, 1127
Polerà, U., 1625, 1950
Pollichetti, E., 164
Pollack, J., 903
Polland, W. S., 963
Pometta, A., 1215
Poncher, H. G., ★316
Ponzi, E., 760
Pool, E. H., 301
Popper, L., 1461, 1785
Poppi, U., 1950
Porges, O., 1875
Poscharissky, T., 562
Poston, M. A., ★482, ★860
Pottenger, F. M., 1454
Pottenger, F. M., Jr., ★1503, ★1670
Potter, H. W., 628
Pound, R. E., 1912
Pouppirt, P. S., ★1910
Pouzet, F., 1214
Power, R. W., 452
Powers, J. H., 623
Poynton, F. J., 1622
Pratt, A. D., 1456
Pratt, J. A., ★1258
Pratt, T. C., 1863
Previtali, G., 555, 1697
Price, J. P., 1374
Priesel, R., 829
Prieur, R., 1299
Proger, S. H., 229
Prokopowicz-Wierzbowska, 1056
Pron, L., 455
Puccioni, L., 697
Pucsko, O., 633
Puech, P., 1055
Pugh, W. G., 758
Puhl, H., 84
Puppel, E., 1305
Pusey, W. A., 746, ★1992
Putney, C. W., 302

Q

Quant, C. A. J., 758
Quérangal des Essarts, J., 1381
Quinan, C., 623

R

Rabinovitch, J., 1294
Rabinowitch, I. M., 448, 1615
Rabinowitz, M. A., ★1228
de Rachewsky, B., 1213
Rackemann, F. M., ★192, 293
Rahm, H., 380
Raia, A., 1374
Raikhstein, B. A., 1545
Railliet, 1870
Raine, F., 1863
Ralph, R. S., 454
Ramage, J. H., 303
Ramirez, M A., ★1080, 1455
Rand, C. W., 230
Ranieri, G., 1037
Rankin, A. L. K., 827
Rankin, F. W., 300, 372
Ranzenhofer, H., 1059
Rapant, V., 381
Rappleye, W. C., 1207
Rask-Nielsen, H. C., 462
Rathery, F., 972
Rau, H., 1302
Raulston, B. O., 71
Ravdin, I. S., 369
Rave, E., 1463
Ray, H. H., 1373
Recarte, P., 1876
Recht, H., 1058
von Recklinghausen, H., 170
Reed, L. L., ★395
Reggiani, G., 1382, 1783
Regueiro López, J., 306
Reiche, F., 379, 1876
Reichel, 1952
Reid, W. D., 442, ★1468
Reimers, C., 311
Reinhard, M. C., 963
Reinhold, J. G., 891
Reisinger, J. A., 1289
Reitter, C., 1629
Remlinger, P., 455
Rennie, J. K., 303
Retterer, E., 1135
Rettig, W., 1542
Reuterwall, O., 977
Revoltella, G., 301
Rey, J. C., 238
Reycraft, J. L., 621, 1208
Reynolds, H. I., 75
Rhoads, C. P., ★579
Ribadeau-Dumas, L., 898, 1055
Rice, C. O., 623
Rice, E. C., 966
Richard, M., 1139
Richards, E. L., ★1011
Richards, L. G., ★766
Riddell, W. R., 1618
Riddle, M. C., 227, 444, 1374
Rider, D. L., 1863
Riecker, H. H., 1375
Ried, O , 1218
Rieder, W., 307
Riegel, C., 369
Rietschel, H., 82
Rigler, L. G., 413, 1536
Riising, B. M., 160, 160
Rikl, A., 902
Rinaldi, R., 1703
Ringdal, R., 978
Risak, E., 1705
Riseman, J. E. F., 444
Riser, 455, 972
Risi, A., 237
Riskin, I. L., 637
Rissak, E., 1544
Ritchie, E. B., ★26
Ritchie, W. T., 303
Ritter, C., 1952
Rittmann, R., 378
Rivers, T. M., 231, ★577, ★579, 1535
Robb, J. R. B., 453
Robert, 1055
Roberts, S. R., ★780
Robertson, H., ★191
Robertson, J. D., 454, 1996
Robey, W. H., 79
Robinson, G. W., Jr., 151
Robinson, H. M., 966
Robitshek, E. C., 756
Robscheit-Robbins, F. S., 77
Roch, M., 1214
Rodríguez Echandía, L., 238
Rodríguez-Izquierdo y Mateos, G., 698
Rodríquez Villegas, R., 1301
Rogatz, J. L., 689
Rogers, C. A., 72, 1454
Rogers, M. H., 299
Roholm, K., 461, 904, 1954
Rolland, 235
Roloff, F., 1305
Romano, N., 975
Root, H. F., 299
Rosahn, P. D., 1207
Rosenbaum, H. A., ★1095
Rosenblum, M B., 977
Rosenfeld, A. S., 368
Rosenow, G., 82
Roskam, J., 304
Roske, G., 1462
Ross, W. H., 693
Rossenbeck, H., 381
Rothberger, J., 1876
Rothermel, E., 831
Rothschild, J. A., 239
Rothström, G. E. A., 1546
Rotnes, L., 84
Rotthaus, E., 1543
Rowe, A. H., 1456, 1995
Rowe, A. W., 368, ★1219
Rowntree, L. G., 1378
Roy, W. R., 756
Royle, N. D., 1780
Rubenstone, A. I., ★1803
Rubin, E. H., 823
Rubin, I. C., 754
Rubin, M. I., ★1828
Ruchka, I., 1789
Rudd, G. V., 1297
Ruddock, J. C., 295
Rudisill, H., Jr., ★1125
Rudner, H. G., 1621
Rudolf, M., 971
Rudolf, R. D., 1532
Rudolph, J. A., 293, 294, 1456
Rupilius, K., 1873
Rupp, H., 764
Russell, A. E., ★1711
Russell, H. G. B., 1701
Rutherford, R., 1132
Rutledge, B. H., 558
Ryan, T. J., 159
Rybak, A. M., 169
Ryle, J. A., 1537

S

Saad, B., 631
Sabatini, G., 561, 1703
Sabin, A. B., 371
Sabouraud, R., 236, 631
Sachs, A., 825
Sachs, W., 762, 977, 977, 1216, 1216, 1216
Sacón, J. I., 975
Sadl, M., 1788
Sadler, E. S., 1869
Safar, K., 1953
Sager, O., 1460
Salle, F., 902
St. Clair, H., 1289
St. John, F. B., 1777
Sainz de los Terreros, C., 1782
Sala, A. M., 1374
Salamon, E., 1133
Salazar, M., 1301
Salazar de Souza, J., 1211
Saleeby, P. J., 965
Salomonsen, L., 637, 1306, 1773
Saltzstein, H. C., 621
Salvin, A. A., 962
Sánchez, J. A., 1037
Sanchez, S. E., 76
Sánchez Cuenca, B., 165
Sandels, T., 1629
Sanders, R. L., 1292
Sands, I. J., 623
Sandweiss, D. J., 624
Sanford, A. H., ★1465
Sannicandro, G., 761
Sansby, J. M., 367
Santenoise, D., 1139
Santi, E., 1998
Santomauro, U., 1703
Santos, J. V., 1293
Santy, P., 1624
Saphir, O., 439, ★1007, 1774
Sappington, C. O., ★1955
Sarafoff, D., 1784
Sardi, J. L., 1950
Sashin, D., 825
Satke, O., 830
Sato, K., 1210
Sauer, L. W., 263
Saunders, E. W., 961
Saupe, E., 1303
Savy, P., 235
Saxl, A., 1387
Scaglia, G., 1216
Scamman, C. L., 1456
Scarpello, A., 1460
Schaack, W., 311
Schad, G., 1950
Schade, H., 311
Schaer, H., 562
Schär, W., 903, 1139
Schaffer, H. W., 1533
Schaffle, K., 1129
Schanz, A., 829
Schapiro, B., 1704
Scharff, O., 378
Scharlau, B., 169
Schauffler, R. M., ★1717
Schechter, S., 690
Scheel, O., 1306
Scheer, K., 1629, 1787
Scheftel, I. B., 1706
Scheiber, T., 83
Schellong, F., 1217
Schelm, G. W., 627
Scheps, M., 827
Scheurlen, F., 829
Schiassi, F., 1783
Schiavone, G. A., 166, 1542
Schiff, C. I., 758
Schiller, A. E., 161
Schippers, J. C., 1218
Schlesinger, B., 694
Schlesinger, E., 1059
Schlesinger, H., 237, 902
Schleyer, E., 240
Schloffer, H., 1952
Schlomka, G., 902
Schmidt, J., 634
Schmidt, M., 832

Schmidt, R., 1386
Schmidt, S., 978
Schmite, P., 81
Schmitz, H., *1413
Schmorell, H., 1218
Schneider, M., 1303
Schneller, P., 831
Schnieder, E. A., 1954
Schnohr, E., 1954
Schöne, G., 1952
Schönfeld, H., 309
Scholl, A. J., 1294
Scholz, B., 1627
Schottmüller, 633, 1138
Schretter, G., 306
Schroder, M. C., 231
Schrødor, G. E., 1546, 1546
Schüller, J., 311, 459
Schugt, H., 169
Schulte, G., 763
Schur, H., 380
Schwartz, A., 1702
Schwarz, E. (London), 169
Schwarz, E. (Messina) 1871
Schwarz, F., 1544
Schwarz, O. H., 152
Sclarra, O., 378
Scollo, G., 305
Scott, E., 753
Scott, H. T., 160
Scott, N., 695
Scott, R. W., 439, 441, 1697
Scott, W. J. M., 1864
Scott, W. M., 162
Scriver, J. B., 1377
Secher, K., 638
Sécoulitch, M., 455
Seeber, F., 1704
von Seemen, H., 240
Segre, G. V., 1625
Seitz, L., 1705
Seligman, B., 77
Selinger, M. A., 966
Selitzky, S. A., 630
Sellheim, H., 633
Selter, G. E., 830
Semb, C., 1790
Séméniako, E. M., 1299
Semenza, C., 974
Semskow, F. J., 239
Sennels, A., 312
Sexton, D. L., 151
Sézary, A., 1134
Sgalitzer, M., 1059
Shahon, H. I., 1619
Shands, A. R., Jr., 1129
Shannon, W. R., 756
Shapiro, S. L., 370
Sharman, A., 453, 1868
Sharp, E. A., 1535
Shaughnessy, T. J., *1249
Shaw, J. W., *1791
Shawan, H. K., *1671
Shea, J. J., 1455
Sheldon, W., 1298
Shepardson, H. C., 79
Sherry, M., *9
Shibley, G. S., *1553, 1941
Shilrock, W. H., 1132
Shivers, C. H. de T., 1205
Shohl, A. T., 449
Shokers, C. F., 1049
Shore, B. R., 961
Short, A. R., 1536
Shultz, S., 1374
Shvartsman, Y. S., 761
Sia, R. H. P., 1048
Sicard, A., 972
Sichel, M. S., 1699
Sidlick, D. M., 558
Siegel, H., 166
Siegl, J., 1787
Sievers, O., 638
Sigwald, J., 972
Sikand, B. K., 1379
Silberschmidt, P., 1628
Silbert, S., 229
da Silva-Mello, A., 1623
Simer, F., 628
Simmons, C. C., 1777
Simonds, J. P., *930
Simonini, A., 1057
Simpson, B. T., 153
Simpson, S. L., 694
Simpson, V., 626
Sinding-Larsen, 978, 978
Singer, H. A., 229
Singer, J. J., 1201
Singleton, A. O., 369
Sironi, C., 164
Sisk, J. N., 1700
Skaar, T., 1306
Skolnik, E. A., 1533, *1742
Slater, S. R., 413
Slatina, M., 1381
Slaviero, A., 1301
Sleeper, F. H., 1292, 1771
Small, J. C., 1018
Smith, A. G., 1532
Smith, C. H., 1195, 1373
Smith, C. S., 1617
Smith, E., 690
Smith, E. C., 163
Smith, E. T., 628
Smith, F. M., 74
Smith, G. G., *1730
Smith, H., 368
Smith, H. L., 302
Smith, J., 162, 303, 1131, 1131
Smith, J. F., 758
Smith, M. I., 1700
Smith, M. K., 1292
Smith, T. D., 72
Smith, W., 156
Smith, W. A. (Atlanta, Ga.), 162
Smith, W. A. (Charleston, S. C.), *659
Smith, W. C., 79, 229
Smith, W. H., *14
Smithburn, K. C., *776
Smithies, F., 447, *1899
Smithwick, R. H., 1208
Snapper, I., 1375
Snider, H. F., 891
Snider, S. H., 151
Snoke, P. O., 1861
Snyder, R. G., 1378
Sobernheim, G., 1783
Sokoloff, M. J., 1533
Sokolov, S., 1542
Soll, D., 1871
Solis-Cohen, L., 368
Solowieff, N., 1950
Sonne, C., 904
Soper, H. W., 299
Sophian, A., *483, 894
Sorapure, V. E., 696
Soresi, A. L., 1775
Soriani, I., 1949
Sorrentino, C., 457
Sosman, M. C., 445, 1296
Sosnov, P. S., 637
Souheil, A., 970
Soulié, P., 1539
Souper, H. R., 1131
Souttar, H. S., 1209
Soutter, C., 898
Soutter, R., 1051
Spalding, O. B., *171
Spaulding, J., 1205
Spector, H. I., *789
Speed, K., 1863
Speese, J., 1778
Spencer, H. W., 1203
Spengler, G., 763, 1706
Speransky, A. D., 970
Sperl, W., 977
Spies, J. W., 1293
Spies, T. D., 157, 690
Spiro, S., 310
Spitzmüller, W., 1305
Spivacke, C. A., 559
Sprunt, D. H., 1375
Sputh, C. B., 297
Stacy, L. J., 690, *983
Stadnichenko, A., 1532
Stage, L. C., 904
Stagnaro, 235
Stahnke, E., 699
Stahnke, E. N., 831
Stal, P. L., 242
Stammers, F. A. R., 969
Stanton, E. M., 295
von Stapelmohr, S., 638
Starcke, H., 976
Starcke, V., 1060
Starling, H. J., 1996
Starna, A., 899
Starr, I., Jr., 891
Steegmann, A. T., *410
Steel, D., 440
Steele, K. B., 621
Steenbock, H., 160, 160, 220
Steenhoudt, J., 1055
Stein, H., 241
Steinbach, M. M., 622
Steiner, M., 627
Steininger, H., 1387
Steinitz, H., 562, 1628
Stengel, F., 632
Stenström, N., 637
Stent, L., 163
Stephani-Cherbuliez, J., 1997
Stephen, J. A., 1131
Sterling, A., 294
Stern, A., 701
Stern, E. A., 169
Stern, E. L., 559, 1775
Stern, R. O., 1132
Sternberg, C., 1876
Stevens, A. B., 1762
Stevens, B. S., 1862
Stevenson, W. D. H., 560
Stewart, D., 1298
Stewart, L. F., 221
Stewart, W. B., 891
Stewart, Z. W., 291
Stieglitz, E. J., 368, *812, 1127
Stiehm, R. H., 1867
Stier, R. F. E., 967
Still, G. F., 1780
Stipa, F., 1872
Stossel, H., 1139
Stojanowskaja, R. W., 693
Stokes, H. L., 759
Stokes, W. R., *14
Stoll, H. F., 413, *796
Stoller, W., 1296
Stone, B., 966
Stone, K., 1380
Stone, M. J., *1315
Stone, W. J., *709
Stone, W. S., 228
Stookey, P. F., *106
Stout, R. B., *1742
Strack, E., 306
Strang, J. M., 77
Strauss, A. A., *1883
Strauss, H. (Berlin), 900
Strauss, H. (New York), 446
Strauss, M. J., *717
Strebel, J., 236
Streicher, M. H., *326
Strokow, F. I., 239
Strong, G. F., 691
Strouse, S., 690
Stuart, G., 234
Stuber, B., 901
Sturgis, C. C., 444, *585
Sturgis, C. S., 73
Sturgis, M. C., 78
Stutzin, J. J., 1545, 1545
Styrikovich, V. L., 1789
Sugiura, K., 298, 298, 1864
Sultan, G., 242
Sulzberger, M. B., *111, *1504
Summerill, F., 230
Summers, C. B., 171
Sundt, O., 1060
Suner, E., 976
Sussig, L., 1544
Sutherland, D. S., 452
Sutliff, W. D., 1865
Sutton, D. C., 228
Suzuki, T., 241
Swart, H. A., 1779
Sweany, H. C., 1532
Sweet, T. A., 1616
Sweitzer, S. E., 1912
Swick, M., *1403
Swift, H. F., 1531
Sylvest, E., 1630
Symes-Thompson, H. E., 1622
Symonds, C. P., 758
Syssak, M., 1133
Szász, A. von S., 308

T

Taft, A. E., 296
Tagliavacche, N., 1541
Tainter, M. L., 448
Takasu, M., 700
Taliaferro, F., 1950
Talpade, S. N., 1054
Tamiya, T., 1210, 1211
Tao, S. M., 1538
Tapia, M., 306
Tarantelli, E., 1215
Tarantola, E., 456
Tardieu, A., 560
Targowla, R., 1212
de Tarnowsky, G., *176
Taub, S. J., 294, 1456
Tavernari, A., 1626
Taylor, H. C., Jr., 1863
Taylor, J., 758
Taylor, K. P. A., 446
Teachenor, F. R., *106
Teacher, J. H., 303
Telfer, F. L., 758
Telfer, S. V., 757
TeLinde, R. W., 625, 1774
Tempé, G., 1133
Terburgh, J. T., 1140
Terrell, T. C., 1945
Thayer, W. S., 558
Thaysen, T. E. H., 312, 461, 1954
Theobald, G. W., 234
Thiel, K., 377
Thiers, H., 235
Thomas, B. A., 964
Thomas, E., 164
Thomas, H. M., Jr., 624
Thomas, R. E., 371
Thomas, R. S., 453
Thompson, J. T., 1617
Thompson, J. W., 153
Thompson, T., 1621
Thompson, W. O., 368
Thompson, W. P., 891
Thoms, H., *21
Thomsen, E., 832
Thomsen, O., 382, 462, 678, 764, 1546
Thorek, M., 550
Thorrud, O., 1306
Thoyer-Rozat, P., 828
Thrush, A. W., 1699
Thuillant, L., 1948
Tiefensee, K., 1162
Tilden, E. B., 1456, [illegible]
Tillett, W. S., 1535
Tingle, G. R., 1377
Tisdall, F. F., 962, 1775
Todd, A. T., 1298
Torning, K., 764
Toland, C. G., 295
Tolleson, H. M., 77
Tollet, W., 638
de Toni, G., 1949
Toulant, P., 1381
Toussaint, P., 973
Toutkowsky, O., 234
Townsend, W. C., 163, *1089, 1289
Toyoda, T., 1458
Traeger, C. H., 1378
Trask, J. D., 449
Trauner, F., 1305
Trautmann, E., 1302
Traynor, R. L., 825
Trémolières, F., 560, 1134
Tremonti, P., 1873
Trethowan, W. H., 758
Troell, A., 701
Troisier, J., 81, 1870
Troppoli, D. V., *405
Trout, H. H., *1307
Truzzi, E., 1872
Tschmarke, G., 307
Tsoulos, G. D., 824
Tumpeer, I. H., *19
Tunstall, C., 626
Turkeltaub, M., 1301
Turriès, J., 1054
Turunen, A. O. I., 832
Tuthill, R., 1534
Twort, C. C., 454
Twort, J. M., 454
Tyler, J. B., 1535
Tyson, M. D., 1455
Tzanck, A., 1134

U

Ubermuth, H., 1463
Ude, W. H., *1, 1536
Uffenorde, W., 377, 1384
Uhlenbruck, P., 239
Uhlmann, E., 1629
Ullian, S., 1208
Uluhogian, L., 698
Umansky, M., 825
Underhill, F. P., *832
Unger, L., 294
Unsheim, E., 763
Unsworth, H. R., *772
Upham, J. H. J., *551
Urdan, B. E., 1453
Urechia, C. I., 81
Urwyler, K., 697
Usher, B., 691
Ustvedt, Y., 84

V

Vadone, A., 1382
Vajda, E., 1875
Valentini, P., 1057
Vallardi, C., 1783
Vallery-Radot, Pasteur, 560
Vallino, M. T., 1057
Van Auken, W. B. D., 1296
van Bogaert, A., 1539
van Bogaert, L., 1948
van Breemen, J., 381, 1790
van den Bergh, A. A. H., 1951
Vanderhoof, D., 628
van der Reis, V., 902
Van Duzen, R. E., 626
van Eckelen, M., 1385
van Haeff, M. H. P. P., 84
van Leersum, E. C., 829
van Nederveen, H. J., 978
van Nouhuijs, F., 381, 1952
van Rijssel, E. C., 242
van Vessem, P., 304
Varela, B., 1876
Vass, A., 831
Vastine, J. H., 1861
Vaughan, J. M., 163
Vauthey, M., 1054
Veil, W. H., 307
Velasco Blanco, L., 1873, 1873
Velicogna, A., 165
Verbeek, A. G. M., 1951
Verdier, H., 1459
Vergeer, T., *1579
Verhaart, W. J. C., 311
Verhoeff, F. H., *583
Verrall, P. J., 758
Vertán, E., 831
Viau, O., 375
Vidacovitch, M., 1179
Vidrasco, C., 375
Viéla, A., 631
Villa, L., 635, 1541
Villarama, A., 1457
Vinard, M. See Monier Vinard
Vincent, H., 1873
Violle, P. L., 303
Virnich, A., 1302
Vlachlis, 828
Vogt, E. C., 446, 1126
Vogt-Møller, P., 1546
Voigt, W., 830
Voillemin, 695
Volk, V. K., 158
Volkmann, J., 1951
Volpe, A., 1783
von Hefe, F. H., *[illegible]
von Lackum, W. H., *472
Vorwald, A. J., 698

W

Waaler, G. H. M., 382
Wachtel, M., 1059
Wadsworth, A. B., 1862
Wagener, H. P., 1454
Wagenfeld, E., 238, 238
Wagner, A., 462
Wagner, C. P., *1725
Wagner, R., 829
Wahlberg, J., 1140
Wail, S. S., 241
Waits, C. E., 76
Wakeley, C. P. G., 968
Waldbott, G. L., 294, 431
Walden, G. B., 77
Walker, B. S., 1774
Walker, G. L., 79, 229
Waller, R. G., 1701
Wallgren, I., 1060
Walsh, E. L., 1047
Walters, W., *102, *1335, 1944
Walthard, H., 1783
Wang, C. C., 690, 1128
Wangensteen, O. H., 623
Ward, E. F., 753
Ward, H. B., 1988
Ward, R., 446, 1621
Warfield, L. M., *1076
Warren, S., 1296
Wartenberg, R., 1462
Warwick, W. T., 454
Wassmund, 635
Waterfield, R. L., *647
Waterhouse, R., 1997
Watkins, C. H., *587
Watkins, R. E., *1647
Watkins, R. M., 559
Watson, F., 1205
Waugh, T. R., 1377
Webb, B. H., 1126
Webb, G. B., *28
Weber, F. P., 169
Weber, G., 308
Weber, H. M., 300
Webster, B., 157
Wechsler, I. S., *21
Wedekind, T., 378
Weech, A. A., 367
Weide, E., 311
Weidlein, I. F., 1455
Weidman, F. D., 1281
Weil, P. E., 696
Weil, S., 701
Weinberg, C. B., *111
Weinstock, M., 622
Wiersma, E. D., 1630
Weise, E. C., *321, 1607
Weiss, A. G., 1459
Weiss, M. M., 78, 555, 1129, 1697
Weiss, S., 443, 444, *846
Weissenbach, R. J., 235
Weller, B., *1831
Wendt, L. F. C., 232
Wermer, P., 308
Werner, M., *1828
Werner, W. I., *1162
Weskott, H., 977
West, C. D., 961
Westenrijk, N., 1877
Wester, J., 1461
Westerborn, A., 1546
Westermark, N., 462
Westmann, S., 1303
Weston, W., 161, *831
Weyrauch, 241
Wheeler, J. M., 622
Wheeler, M. W., 961
Whipple, G. H., 77
Whitby, L. E. H., 968
White, E. C., *27
White, E. W., *393, *662
White, J. C., 229, 1208
White, P., *1160
White, P. D., 1125, *1189
Whitney, C. E., 961
Whittaker, W. M., 153
Wholey, C. C., *1073
Wichmann, P., 762
Wiener, A. S., 431, 681
Wiggers, C. J., 625
Wikoff, H. L., 1617
Wilbur, D. L., 891
Wildegans, H., 1871
Wilder, J., 167
Wildman, O., *171
Wile, U. J., 556, 1698, *1791
Wilén, N. E., 961
Wilensky, 1387
Wilkinson, H. M., 151
Wilkinson, K. D., 1579
Wilkinson, W. C., 172
Willan, R. J., 1761, 1858
Willemin, L., 828
Willi, H., 1627
Williams, A. W., 558
Williams, H., 1172
Williams, C. M., 1573
Williams, J. B., *1423
Williams, J. W., 1774
Williamson, A. C., 1281

AUTHOR INDEX

Williamson, G. R., 1619
Willinsky, B., 234
Willis, R. A., 695, 1946
Wills, L., 453, 1054
Wilmanns, 831
Wilmer, H. B., 158
Wilmoth, C. L., 295
Wilmoth, P., 1131
Wilson, F. N., 443
Wilson, G. H., 1946
Wilson, H. V., Jr., ★399
Wilson, J. C., 1615
Wilson, J. F., 967
Wilson, L. A., ★1093
Wilson, W. J., 1049
Winans, H. M., ★199
Windfeld, P., 458
Wing, E. S., ★405
Winge, K., 764
Winkelman, N. W., 296
Winkelstein, A., 1617
Winocur, P., 1542
Winterstein, O., 831
Winther, K., 1706
Wirz, F., 1304
Wise, F., ★1504
Wishart, D. E. S., ★1084
Wishart, S. W., 443
Wislocki, G. B., 1291
With, A. M., 1464
Wittkower, E., 1628
Woglom, W. H., ★473
Wolbach, S. B., 1531
Woldrich, 1386
Wolf, C. G. L., 963
Wolfe, P. S., 1944
Wolfer, P., 760, 1621
Wolff, E., 1773
Wolff, E. G. K., 700
Wolff, G., 1785
Wolff, H. G., 296
Wolff, L., 1125
Wolff, L. K., 1385
Wolffe, J. B., 361
Wolff-Eisner, A., 762
Wollesen, J. M., 764
Wollheim, J. L., 693
Woltman, H. W., ★1398
Wood, D. A., 1615
Wood, F. C., ★1141
Wood, W. B., 454, 1537
Woodall, C. S., 445
Woodard, H. Q., 228
Woodburne, A. R., ★1253
Woodruff, I. O., ★1213
Woodward, F. D., ★927
Woodyatt, R. T., 71
Worms, G., 235
Worms, R., 560
Worster-Drought, C., 474, 968
Woskressenski, N. A., 1388
Wrede, F., 306
Wright, G. P., 373, 1916
Wright, H. D., 758
Wright, H. P., 1616
Wright, I. W. M., 963
Wright, L. M., 1289
Wulff, F., 901
Wyckoff, J., 443, 449, ★1243, 1289
Wylie, M. E., 1297

Y

Yasnitsky, N. N., 1546
Yater, W. M., 415
Yates, J. L., 1863
Yegge, W. B., 1940
Yeomans, F. C., ★1907
Young, A. G., 1378
Young, W. B., 156
Younger, L. I., 550
Yuen-Si-Tchong, 1623

Z

Zadoc-Kahn, B., 1134
Zaffagnini, A., 236
Zahorsky, J., 150
Zak, E., 903
Zalewski, F., 760
Zamkoff, A. A., 759
Zapffe, F. C., 755
Zerfas, L. G., ★776
Ziegler, J. M., 1617, 1943
Zimmer, A., 166, 1463
Zinsser, H., 231, 1940, 1940
Zipf, K., 238, 238
Zischinsky, H., 377, 377, 378
Zolotowa, N. A., 635
Zondek, B., 1788
Zucali, A., 456
Zuccoli, 1380
Zukschwerdt, L., 700
Zweifel, E., 1385

INDEX TO PAGES

OF THE JOURNAL, ACCORDING TO WEEKLY ISSUES—VOLUME 95, JULY-DECEMBER, 1930

Pages	No.	Date	Pages	No.	Date	Pages	No.	Date	Pages	No.	Date
1— 84	1	July 5	563— 638	8	Aug. 23	1061—1140	15	Oct. 11	1547—1630	21	Nov. 22
85— 170	2	July 12	639— 702	9	Aug. 30	1141—1218	16	Oct. 18	1631—1706	22	Nov. 29
171— 242	3	July 19	703— 764	10	Sept. 6	1219—1306	17	Oct. 25	1707—1790	23	Dec. 6
243— 312	4	July 26	765— 832	11	Sept. 13	1307—1388	18	Nov. 1	1791—1878	24	Dec. 13
382	5	Aug. 2	833— 904	12	Sept. 20	1389—1464	19	Nov. 8	1879—1954	25	Dec. 20
		Aug. 9	905— 978	13	Sept. 27	1465—1546	20	Nov. 15	1955—2084	26	Dec. 27
		16	979—1060	11	Oct. 4						